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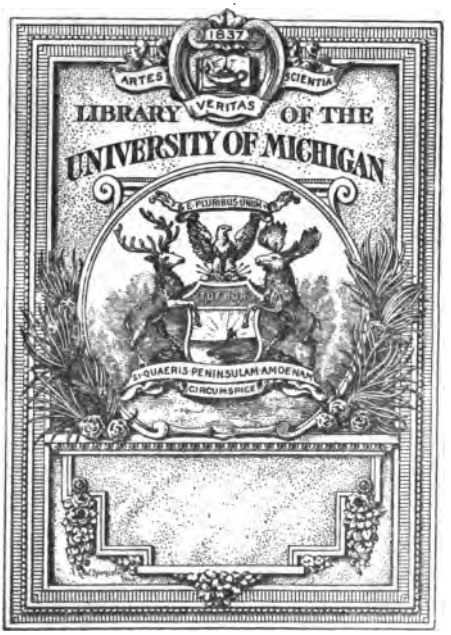

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BULLETIN OF THE UNIVERSITY OF WISCONSIN
No. 289: General Series, No. 164.

THE UNIVERSITY OF WISCONSIN CATALOGUE

1908–1909

MADISON
Published by the University
April, 1909

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THE

UNIVERSITY OF WISCONSIN

CATALOGUE

1908-1909

MADISON

1909

Issued bi-monthly, and entered as second class matter at the postoffice, at Madison, Wisconsin

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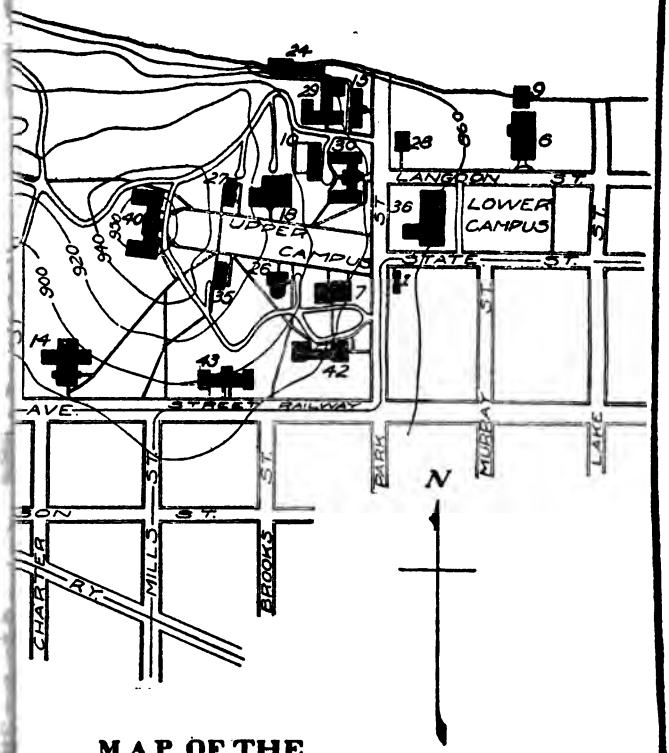

MAP OF THE

ERSITY OF WISCONSIN

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CALENDAR

1908

Sept.	28-29-30	Mon.-Tu.-Wed.	Registration days.
Sept.	29-30	Tu.-Wed.	Examinations for admission.
Oct.	1	Thursday	Lectures and recitations begin.
Nov.	26	Thursday	Thanksgiving Day: legal holiday.
Dec.	23	Wednesday	Christmas recess begins.

1909

Jan.	5	Tuesday	Exercises resumed.
Feb.	6-17	Sat.-Wed.	Final examinations, first semester.
Feb.	18-19	Th.-Fri.	Registration days.
Feb.	22	Monday	Washington's birthday: legal holiday.
Feb.	23	Tuesday	Lectures and recitations begin.
April	8-12	Th.-Mon.	Easter recess.
May	30	Sunday	Memorial Day: legal holiday.
June	12-18	Sat.-Fri.	Final examinations, second semester.
June	17-18	Th.-Fri.	Examinations for admission.

Commencement Week

June	20	Sunday	Baccalaureate Address.
June	21	Monday	Class Day Exercises.
June	22	Tuesday	Alumni Day.
June	23	Wednesday	Commencement Day.

Summer Session

June	28	Monday	Summer session opens.
Aug.	6	Friday	Summer session closes.

THE ACADEMIC YEAR 1909-10

1909

Sept.	27-28-29	Mon.-Tu.-Wed.	Registration days.
Sept	28-29	Tu.-Wed.	Examinations for admission.
Sept.	30	Thursday	Lectures and recitations begin.
Nov.	25	Thursday	Thanksgiving Day: legal holiday.
Dec.	23	Thursday	Christmas recess begins.

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1910

Jan.	4	Tuesday	Exercises resumed.
Feb.	7–16	Mon.–Wed.	Final examinations, first semester.
Feb.	17–18	Th.–Fri.	Registration days.
Feb.	21	Monday	Lectures and recitations begin.
Feb.	22	Tuesday	Washington's birthday: legal holiday.
March	24–28	Th.–Mon.	Easter recess.
May	30	Monday	Memorial Day: legal holiday.
June	11–17	Sat.–Fri.	Final examinations, second semester.
June	16–17	Th.–Fri.	Examinations for admission.
June	19–22	Sun.–Wed.	Commencement Week.

NOTE.—The Association of American Universities at a recent meeting defined a college as a part of the university, the standard of admission to which is the equivalent of that required by the Carnegie Foundation for the Advancement of Teaching, and which offers instruction leading to a first degree in arts, letters, or science.

It further defined a school as a part of the university, the standard of admission to which is not less than the equivalent of two years' work in the college, and which offers instruction of not less than two years duration leading to a technical or professional degree.

In accordance with this definition, the divisions of the University of Wisconsin, which in this catalogue are designated college of law and college of medicine, should be called the law school and the medical school.

The definition of the Association of American Universities has been accepted by the faculty of the University of Wisconsin, approved by the regents, and adopted by the legislature. Therefore hereafter in the official publications of the university the divisions heretofore called the college of law and the college of medicine will be referred to as the law school and the medical school.

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1908-1909

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*Resigned December 14, 1908.
†On leave of absence for the first semester, 1908–09.

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* Resigned February 1, 1909.
† On leave of absence for the first semester, 1908-09.

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† Resigned February 15, 1909.

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†Appointed December 15, 1908.
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BUEHLER, ELIZABETH, B. A., Piano. *Assembly Hall* 3. 1809 Jefferson.
CASE, LEROY CLARENCE, Public School Music. *Assembly Hall* 7. 708 State.
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THE UNIVERSITY OF WISCONSIN

INTRODUCTION

HISTORICAL SKETCH

The first steps toward the establishment of a university in Wisconsin were taken in 1836, the first year of the territory. The estimated population of the territory at this time was about 22,000, of which probably one half was in the country west of the Mississippi River which had been included in Wisconsin Territory for the purpose of temporary government. With this sparse pioneer population, it is probable that little thought would have been given to the establishment of a university had it not been the policy of the federal government to set aside a tract of land in each of the new territories for the benefit of a seminary of learning.

No reservation having been made for this purpose in the act under which the territory of Wisconsin was organized, Henry Dodge, the first territorial governor, in his first message, recommended that congress be asked for the donation of one township of land, to be sold, and the proceeds devoted to the establishment of an academy for the education of youth. In anticipation of such application to congress, the legislature passed an act (approved Dec. 8, 1836) providng for the establishment at Belmont, where the first legislature was then in session, of "a university for the purpose of educating youth, the style, name, and title whereof shall be the Wisconsin University." The act provided for the government of the University by twenty-one trustees, named in the act, of whom the governor was to be one. Nothing further was done at this time, however.

Madison had been selected as the capital of the territory at the first session of the legislature, but pending the erection of the capitol buildings, the second session was held at Burling-

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ton, now in Iowa. At this session, the legislature, recognizing that Madison, by its location and natural beauties, was admirably fitted to be the site of the proposed university, passed an act (approved Jan. 19, 1838) which superseded the act of 1836, and which provided that there should be established "at or near Madison, the seat of government, a university for the purpose of educating youth, the name whereof shall be the University of the Territory of Wisconsin." The government was to be by a board of twenty-one visitors, named in the act and including the governor and other territorial officers. Immediately upon the passage of this act, the legislature adopted a resolution directing the territorial delegate in congress "to ask of the Congress of the United States an appropriation in money of $20,000 for the erection of the buildings of the said university and also to appropriate two townships of vacant land for its endowment." By act approved June 12, 1839, congress authorized the secretary of the treasury "to set apart and reserve from sale out of the public land within the territory of Wisconsin, not exceeding two townships for the use and support of a university within said territory." Congress did not, however, make the appropriation of money which had been asked.

The population of the territory was growing rapidly. By act of congress of June 12, 1838, the country west of the Mississippi River was organized into the separate territory of Iowa and set off from Wisconsin on July 4 of that year. This left Wisconsin with the Mississippi as its western boundary and an estimated population of about 18,000. Congress having failed to appropriate money for the university buildings and the territorial legislature not feeling justified in making such expenditure, the establishment of the University was delayed until after the admission of Wisconsin into the Union. Meanwhile the board of visitors kept up an organization, and the legislature provided for the location of the two townships or 46,080 acres of university lands.

Wisconsin was admitted to statehood on May 29, 1848, with a population of about 250,000. In accordance with the provisions of the new constitution, the legislature, by act, approved July 26, 1848, provided that there should be established "at or near the village of Madison, an institution of learning under the name and style of the University of Wisconsin:" the government to

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be by a board of regents to be elected by the legislature. It was under this act that the University was organized.

In accordance with the provisions of the enabling act of Aug. 6, 1846, the title to the university lands vested in the state upon its admission. The constitution provided for the sale of these lands after their appraisal, subject only to the qualification that they might be withheld from sale when the commissioners should deem it expedient. (Sec. 8, Art. 10.) The proceeds of these lands were to constitute the university fund, from the income of which the University was to be supported.

The regents held their first meeting in October, 1848. The schools of the new state not being sufficiently advanced to fit for entrance to the University, a preparatory department was provided for to open in February, 1849, under the charge of John W. Sterling, a graduate of the University of New Jersey (Princeton). John H. Lathrop, a graduate and afterwards a tutor of Yale College, was called from the presidency of the University of Missouri to become Chancellor of the University. He was formally inaugurated January 16, 1850. College Hill was early acquired as a site for the University. It was partially included in the purchase of the Vanderpool tract of 157 acres; the remainder being secured by exchange and purchase. About fifty acres, including College Hill, was destined for the site of the University. The remainder of the property was laid out into 174 village lots and 12 five acre tracts. The plans for the University contemplated a main edifice on the crest of the hill, an avenue 240 feet wide from the main edifice to the east line of the grounds, and four dormitories lower down the hill, two on each side of the avenue. North Hall, the first university building, was opened in the fall of 1851, having been constructed from a loan authorized by the legislature.

As it was the evident expectation at this time that the University was to depend solely upon its fund for its income, the regents were desirous of obtaining a maximum fund. The first appraisal of university lands was found to be under $3.00 an acre. At the request of the regents, the legislature in 1850, set a minimum price of $10 an acre upon the university lands, reducing this, however, to $7.00 an acre in 1851. It had been expected that the fund would grow rapidly. On the contrary, the sales of university lands almost ceased, and the fund remained

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stationary at about $25,000. The income from this fund was only sufficient to pay the interest on the loan, and the University was seriously embarrassed. It became necessary to sell the town lots and the five acre tracts in order to provide running expenses. The lots produced a total of some $12,500, or about $7,500 more than the original cost of the whole property. Meanwhile, as it was imperative that an increased revenue be provided for the University, the legislature in 1852 provided for the reappraisal of the university lands with a minimum valuation of $3.00 an acre. Though not willing to make a direct appropriation for the benefit of the University, the state legislature took steps which resulted in the University's securing a second land grant. The federal government had granted to the state 72 sections of salt springs lands. No salt springs were to be found in Wisconsin, however, and as early as 1848 the legislature had requested congress to permit the selection of an equivalent amount of other lands. Congress had taken no action in the matter. By joint resolution of Jan. 19, 1851, the legislature renewed its request but asked that the grant be made for the benefit of the University. Congress complied with this request by act of Dec. 15, 1854, and provided that the land so granted "be sold in such manner as the legislature may direct for the benefit and in aid of the University."

The wording of this grant suggests that it was intended to be a measure of relief to the University. Had it not been for the request of the legislature, congress would undoubtedly have made this grant to the state, for its own use. This grant may, therefore, be considered as the first important gift, though indirectly accomplished, of the state to the University.

The revaluation of the university lands on the lower basis, stimulated their sale and by the end of the year 1853 the university fund had increased to over $100,000. The regents decided upon the erection of the second dormitory, "which should be plain and substantially constructed, with a taste too severe to sacrifice utility to ornament." The legislature authorized the loan of $15,000 for this purpose and South Hall was built, being completed in 1855.

On July 26, 1854, the University graduated its first class, consisting of Levi Booth and Charles T. Wakeley. At this time the faculty consisted of Chancellor Lathrop, occupying the chair

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of ethics, civil polity, and political economy, Professor Sterling, who taught mathematics, natural philosophy, and astronomy, Obadiah M. Conover, professor of ancient languages and literature, and Stephen H. Carpenter, tutor. The attendance was forty-one, exclusive of fifteen students in the preparatory course.

The sales of university lands progressed rapidly and by the close of 1854 the fund amounted to $161,000 with only 6,000 acres of the first land grant remaining unsold. The regents announced in their report for this year that "the institution is now emerging from the embarrassments attendant on the period of converting a land endowment into a productive fund and erecting the buildings." By the end of 1856 the fund had grown to $310,000, most of the second grant having been sold. The increased attendance now made the erection of the main building necessary. For this purpose the legislature authorized a loan in 1857, from the principal of the university fund. Almost from the outset of this undertaking the University experienced serious embarrassment. The panic of 1857 swept over the country. Difficulty was experienced in raising money for the completion of the building and the regents were forced to borrow at the high rate of ten per cent. To add to its difficulties, thousands of acres of university lands were forfeited by the purchasers, thus reducing the fund and greatly impairing the income of the University. The panic was followed by the war and the forfeiture of lands continued. In the early sixties it became necessary to look forward to the repayment, in annual installments, of the principal of the building loans, which aggregated about $100,000. Salaries were cut and pinching economy instituted, but it was evident that it would be impossible to meet the interest payments and the payments on account of the principal of the loans, and at the same time maintain the University in any degree of efficiency. The regents make the following significant statement in their report for the year ending Sept. 30, 1861: "It is submitted that the policy adopted by the early movers in the organization of the University and enjoined by the provisions of its charter, of providing grounds, buildings, and the entire outlay of preparation for a university, from the income of its endowment, *has signally failed.*" As a measure of relief the legislature by Chap. 208, laws of 1862, cancelled the indebted-

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ness of the University to its fund, incurred for the building of Main Hall, and authorized the payment from the principal of the fund of all other indebtedness incurred for buildings. While the effect of this was to reduce the permanent fund by the amount of the indebtedness thus cancelled and paid off (about $100,000) it left the income of the balance of the fund freed from the obligation of repaying the principal of the loans. The effect of this act was equivalent to the University's having constructed its buildings from the capital of its fund instead of from the income.

The University grew rapidly after the war and again its income became insufficient. It was pointed out that, whereas the constitution provided that the university fund was to be perpetual, the legislature had permitted the fund to become impaired by providing for the payment of the indebtedness of the University for buildings from the principal of the fund. It was figured that the annual income thus lost to the University was $7,333.76. The legislature by Chap. 2, laws of 1867, authorized an annual tax of this amount to be appropriated to the university fund income. Thus the state was reluctantly, but nevertheless surely, coming to the support of the University. The principle of direct appropriations by the state for the support of the University was acknowledged a few years later in an appropriation for the building of "Ladies Hall" and an increase of the annual tax for the University to $10,000. Since this the state has given generous support to the University.

The University had been criticised because of its preparatory department, and because of the alleged narrowness of the curriculum. It was demanded that "a more distinct bias should be given to its instructions in the direction of the several arts and avocations as they exist among men." In 1858, as the outcome of these demands, the preparatory department was restricted in its scope, and the University was reorganized into a department of science, literature, and the arts, consisting of six schools: philosophy, philology, natural science, civil and mechanical engineering, agriculture, and polity.

Chancellor Lathrop was succeeded in 1859 by Henry Barnard, a graduate of Yale, prominent in the reorganization of the schools of Connecticut and Rhode Island, founder of the *American Journal of Education*, and (1867) first national Com-

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missioner of Education. His policy centered in elevating the public school system of the state as a basis for university growth, but ill health caused his resignation in 1860.

Under the *ad interim* direction of Professor Sterling, the University remained without a chancellor until 1867. The Civil War took a large proportion of the students into the field, and no commencement was held in 1864, all but one of the senior class having joined the army.

The close of the war brought a new inspiration and growth to the University. The returning soldiers took up their studies, and by 1870 the University had nearly 500 students. A reorganization was effected in 1866, and Dr. Paul A. Chadbourne, a graduate of Williams College, was called to the presidency. Among the important developments of this period was the founding of the College of Law, the maturing of plans providing for co-education, and the institution of the agricultural department as an integral part of the University. This constituted a radical departure from the policy of the other states of the middle west. In many instances agricultural and engineering colleges have been founded apart from the state university. The rapid growth of the University of Wisconsin and its hold upon the people have been in a considerable measure due to the fact that it contains within its organization the colleges which appeal to the farmer and artisan as well as to the business and professional classes of the state.

It was through the efforts of President Chadbourne that an appropriation of $50,000 was secured from the legislature of 1870 for the erection of a separate building for the women students of the University. This building, now known as Chadbourne Hall, was constructed during the following year, when Professor Sterling as Vice-President administered the University, and was first occupied in the fall of 1871.

President Twombly came to the University at the beginning of the academic year 1871–72. He was a graduate of Wesleyan University of Middletown, Connecticut, one of the overseers of Harvard College, and a founder of Boston University.

The reorganization of 1866 had provided for co-education, but for some years the work of the women was kept separate from that of the men. It was significant, however, of an increasing recognition of the importance of the education of women that

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the first building appropriation the legislature made to the University was for the women's building, and only a few years elapsed when complete co-education was adopted. Perhaps the most important development of the period of Dr. Twombly's presidency was the provision made by the legislature for a state tax of $10,000 a year to form a part of the University income. In thus adopting the policy of a special annual tax for the support of the University, the legislature made the formal explanation in the preamble to the law, that the policy of disposing of the land grants by congress at a low price, in order to attract actual settlers, had prevented the increase of the productive funds, and that it was the duty of the State to see to it that the University should not suffer. A system of free tuition to the graduates of the high schools of the State who passed the University entrance requirements, was also adopted at this time. This step was the beginning of the elimination of the preparatory department of the University. By resting its growth upon the high schools of the State, and receiving an annual income from the taxpayers, the University merged itself completely with the educational life of the State, and, in the long run, felt the benefits of this change.

With the coming of President Bascom from Williams College, in 1874, the University entered upon a new life. The finances of the institution were put on a better basis by the legislative grant of a tenth of a mill tax, which afforded increasing revenue as the wealth of the State increased. Large specific grants for new buildings, including Assembly Hall, Science Hall, the Chemical Building, and the Machine Shop, were made in the same period. The Farmers' Institutes and the Short Course in Agriculture brought the University into closer touch with the farmers of the State. Under Dr. Bascom's presidency the preparatory department was abolished, and the University found all the students it could care for among the graduates of the high schools. At the beginning of his presidency the attendance, excluding the preparatory department, was about 300. At its close, thirteen years later, it was but 500; but the University had thoroughly gained the respect of the State.

President Bascom was succeeded by President Chamberlin of the United States Geological Survey, a graduate of Beloit College. He gave the University a strong impulse toward graduate study

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by the emphasis which he laid on research. Courses of study were increased, the standards of admission raised, and fellowships provided for graduate study. When he resigned, after five years of service, in 1892, the University had doubled its numbers, rising from 500 to 1,000. During his presidency, a new science building was completed, and buildings were erected for the Dairy School and the College of Law. In addition, a university boat house was built, and the contracts let for the Armory and Gymnasium, now such a prominent feature of the Lower Campus.

President Adams came to Wisconsin from Cornell, whose presidency he had just resigned. Under his administration the University rose from 1,000 students in 1892 to 2,600 in 1901. The beautiful building for the library of the State Historical Society and the University, costing nearly three quarters of a million of dollars, and housing treasures of inestimable value, is the most impressive monument of his presidency. The University developed into a larger life in all directions during these ten years. The increase in the number of graduate students was large and the emphasis upon graduate teaching was distinct. At the close of his presidency there were over one hundred graduate students, while ten years before there were only twenty-two. Athletics had reached their largest development in the same period, and Camp Randall, an athletic field of forty-two acres, was purchased for the University. The University began its summer sessions in 1899, a development which has been very important in increasing the influence of the University.

During the absence of Dr. Adams, caused by illness, and after his resignation, Professor Birge, Dean of the College of Letters and Science, served as Acting President during the three academic years, 1900–1903.

President Charles R. Van Hise, the first alumnus of the University to hold the presidency, was elected in the spring of 1903, and assumed the active duties of the position at the beginning of the succeeding academic year.

THE SUPPORT OF THE UNIVERSITY

The University is supported partly by the income of federal grants, partly by taxation of the people of the State, partly by student fees and to a slight extent by private gifts. There have been seven federal grants, namely: the Two-Township Grant of

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1848; the Supplementary Two-Township Grant of 1854; the Morrill Grant of 1862 for the support of studies pertaining to agricultural and mechanic arts; the Hatch Grant of 1887 for the support of agricultural experiment stations, the Supplementary Morrill Grant of 1890, the Adams Act Grant of 1906 and the Nelson Grant of 1907.

Besides numerous and large appropriations for buildings and other specific purposes, the State of Wisconsin has made a number of continuing grants, namely; the one-tenth mill tax of 1876, increased to one-eighth mill in 1883; the additional one-tenth mill tax of 1891; the appropriation for the support of the Observatory in 1887; the appropriation for the support of Farmers' Institutes in 1885, increased in 1887; the appropriation for the College of Engineering, in 1889, of one per cent. of the railroad license tax; and the additional one-fifth mill grant of 1897. The legislature of 1899 consolidated the various mill taxes, specified above, and the grant of one per cent. of the railroad licenses into a specific continuous annual grant of an amount equal to the annual revenue from these various grants. This appropriation was increased by the legislature of 1901 and again by the legislature of 1903.

In 1905 the laws making specific annual appropriations for the support of the University were repealed, and a two-sevenths of a mill tax was imposed for current expenses. This change resulted in a considerable increase in the income of the University. Moreover, an appropriation was made, extending through three years, for permanent improvements, including buildings for educational purposes, repairs and improvements, apparatus and books. The legislature of 1907 continued this appropriation for two years. The same legislature made an additional appropriation for a period of four years for student buildings, to comprise a women's building, including a women's gymnasium, and for men's dormitories. The authority to establish a medical college was granted, and a continuing appropriation was made to establish a university extension division.

Of the gifts that have come to the University from individuals before the present year, that of Dane County for the purchase of lands for the University farm, that of the late Governor C. C. Washburn for the founding of the Washburn Observatory, that of the late Judge Mortimer M. Jackson for the establishment of the Mortimer M. Jackson Professorship of Law, that of the late

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Dr. C. K. Adams and Mrs. Adams for the foundation of fellowships, and that of Mrs. Fannie P. Lewis for the foundation of scholarships for women, have been the most considerable and important.

On August 27, 1908, Colonel William F. Vilas, who for fifty years had been deeply interested in the University as student, as regent, and as citizen, died. His entire estate was bequeathed to the University, the income, however, in part or whole if need be to go to his wife and daughter during their lives. Half of the income of the estate is to be used for the support of research professorships, fellowships, and scholarships and the remainder to increase the principal. While it will be many years before the University gains financial assistance from this bequest, its influence for the development of the University along the highest lines cannot but be felt at once.

THE UNIVERSITY AND THE STATE

The University of Wisconsin is the culmination of the free educational system of the State. In the educational policy of the State, the University sustains a similar relation to the high schools that the high schools sustain to the primary and grammar schools. As those who have passed through the grammar grades may freely avail themselves of the high schools, so those who have completed with credit a high school course may advance to the opportunities offered by the University. It is not expected that all pupils who complete the grammar grades will advance to the high school; nor is it expected that all who complete a high school course shall go forward to the University. But the school system of the State has been so arranged as to make the passage from one grade to another as easy and natural as possible, in order to afford every encouragement to higher education. The State through the University undertakes to furnish instruction in the various branches requisite for a liberal education, in the technical branches of engineering, law, agriculture, medicine, pharmacy, chemistry, commerce, home economics, and music. It also aims to encourage research work in all departments, to produce creative scholars, and so do its part in the enlargement of the domain of knowledge. Finally the University through an extension division organized upon the broadest basis is widely assisting the people of the State in the assimilation of

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the extraordinary advance in knowledge which has been characteristic of the past two score years. Thus it is the general policy of the institution to foster the educational interests of the State, broadly and generously interpreted at the University. By prescribing a large number of studies during the first two years of undergraduate work, and by leaving all, or a large part, of the work of the last two years to the free selection of the student, under a definite system, the University endeavors to give a wise measure of direction, leaving at the same time sufficient room for choice to encourage individual adaptation and special development. The graduate work is, of course, wholly elective.

GOVERNMENT

The government of the instutition rests upon the inherent obligations of students to the University and to the State. The University is maintained at the public expense for the public good. Those who participate in its benefits are expected, as a matter of honor, not only to fulfill the obligations of loyal members of the institution, of the community, and of the commonwealth, but actively to aid in promoting intellectual and moral interests. Every student owes to the public, in the form of superior usefulness to it, both while in the institution and afterwards, a full equivalent for its expenditure in his behalf.

The University avoids all that is sectarian or partisan; but it endeavors to extend its sympathy and influence to whatever contributes to good citizenship and high character.

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ORGANIZATION

The University embraces—

- The College of Letters and Science.
- The College of Engineering.
- The College of Law.
- The College of Agriculture.
- The College of Medicine.
- The Graduate School.
- The Extension Division.

The College of Letters and Science embraces—

- General Courses in Liberal Arts.
- Special Courses, which include:
  - Chemistry.
  - Commerce.
  - Journalism.
  - Music.
  - Pharmacy.
  - Training of Teachers.

The College of Engineering embraces—

- The Civil Engineering Course.
- The Mechanical Engineering Course.
- The Electrical Engineering Course.
- The Applied Electrochemistry Course.
- The Mining Engineering Course.

The College of Agriculture embraces—

- The Experiment Station.
- The Long Course in Agriculture.
- The Middle Course in Agriculture.
- The Short Course in Agriculture.
- The Dairy Course.
- The Farmers' Institutes.
- Home Economics.

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The College of Law embraces—

A THREE YEARS' COURSE.

The College of Medicine embraces—

THE FIRST TWO YEARS OF A MEDICAL COURSE.

The Extension Division embraces—

THE DEPARTMENT OF INSTRUCTION BY LECTURES.

THE DEPARTMENT OF CORRESPONDENCE-STUDY.

THE DEPARTMENT OF GENERAL INFORMATION AND WELFARE.

THE DEPARTMENT OF DEBATING AND PUBLIC DISCUSSION.

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EQUIPMENT

GROUNDS AND BUILDINGS

The University of Wisconsin is picturesquely situated at Madison, the capital of the State. The University grounds comprise 600 acres, and extend for more than a mile along the south shore of Lake Mendota, a sheet of water about four miles in width and six miles in length. In the eastern part of the grounds the land rises abruptly from the lake into two summits, of which the eastern and higher, University Hill, reaches a height of about one hundred feet above the lake. The larger number of the college buildings are placed on the summit and eastern slope of this hill. The western part of the grounds is lower and more nearly level, and is occupied by the Experimental Farm, belonging to the College of Agriculture. East of the University Hill is the lower campus, on the west end of which stands the State Historical Society Library building for the libraries of the State Historical Society and the University. (For an account of this building, see Index, under Libraries.) The rest of the lower campus is used for athletic sports and as the drill ground for the military department. At the session of 1893 the legislature provided for the purchase of Camp Randall for an athletic field. This is a tract of ground comprising forty-two acres, adjoining the University grounds to the southwest. In 1898 one hundred and sixty acres were purchased for a special experimental farm for the College of Agriculture, to which, in 1903, sixty acres were added.

The buildings of the University that are used for instructional purposes are eighteen in number. The oldest three—North Hall, South Hall, and University Hall—stand on and near the eastern summit of University Hill. North Hall was erected in 1850–51, and was opened for instructional purposes on September 17, 1851. It is now occupied by the departments of German and Commerce. South Hall was erected in 1855. It contains the office of the Dean of the College of Letters and Science; offices, lecture rooms, and laboratories for the departments of Bacteriology, Pathology, He-

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brew and Hellenistic Greek, and the offices of the Wisconsin Geological and Natural History Survey. University Hall, the construction of which was authorized by the legislature in 1857, was completed in 1859; it has since been materially changed; a new portico, a new dome, and a large south wing were added in 1897–99; a corresponding north wing was added in 1905–06, thus completing the building and making it worthy of its site on the crest of University Hill. This building contains the lecture and recitation rooms for most of the departments of Language and Literature, Mathematics, History, and Philosophy. On the first floor of the new wing are the offices of the President and the Registrar. These buildings as originally erected were paid for out of the money derived from the sale of lands granted by the national government.

Across the east front of the campus, at the foot of University Hill, is a row of buildings, erected at the expense of the state of Wisconsin. At the south is Chadbourne Hall, the dormitory for young women; it was built in 1870 and remodeled and enlarged in 1896 (see Index). To the west in process of construction is located a women's building which will be completed by the autumn of 1909. This building is to serve as a gymnasium and a union for the women. It also will contain dining halls and rooms for the women's literary and other allied societies. North of Chadbourne Hall stands Assembly Hall, completed in 1879. The rear part, occupied by the University Library until the summer of 1900, has been remodeled for the School of Music. Still farther north is Science Hall, the largest and most costly of the University buildings, completed in 1887, containing the lecture rooms, laboratories, and museums of the departments of Physics, Geology, and Biology (including Anatomy). Next to Lake Mendota is the old Chemical Laboratory, built in 1885, and now occupied by the departments of Chemical Engineering and Physiology. To the rear of this are the Machine Shop and the Central Heating Plant, both built in 1885, and enlarged in 1894. To the north of the Machine Shop, and abutting the lake, is the new Hydraulic Laboratory Building, completed in 1905. To the west of Science Hall, on the north side of the campus, is the Engineering Building, erected in 1900. Opposite this, on the south side of the campus, is the Law Building, erected in 1893, which contains the library, lecture rooms, and offices of the College of Law.

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In 1906 the property on the corner of State and Park streets was purchased by the University, and during the summer of the same year the building was remodeled, and is now occupied by the officers of the Regents.

Southwest of University Hall, on the level tract of land fronting on University avenue, stands the Chemical Building.

Directly west of University Hill is Observatory Hill, upon which stands Washburn Observatory, erected in 1878 through the munificence of the late Gov. C. C. Washburn. Near it are the Students' Observatory and the residence of the director. On the western slope of Observatory Hill are the Hiram Smith Hall (for the Dairy School), constructed in 1891, the Horticulture-Soils Building, begun in 1893 and completed in 1896, and the new central Agricultural College Building, first occupied in 1904, a description of which may be found in that part of this catalogue devoted to the College of Agriculture. South of Agricultural Hall are the Farm Engineering Building and the Agronomy Building, which were occupied for the first time in the autumn of 1907. Further west are located the Live Stock Pavilion containing an amphitheatre capable of seating 2,000, the barns of the Experimental Farm and the residence for the Dean of the College of Agriculture.

Between the lower campus and the lake stands the Armory and Gymnasium, authorized by the legislature of 1901, and between this and the lake is the University boat house.

LIBRARIES

The libraries at Madison, all of which are at the service of members of the University, are five in number, viz., the Library of the University of Wisconsin, the Library of the State Historical Society of Wisconsin, the Library of the Wisconsin Academy of Sciences, Arts, and Letters, the State Law Library, and the Madison Free Library. These libraries duplicate books only to supply exceptional demands, and have an effective strength approximately equal to the total number of volumes possessed by them. The total number of bound volumes in all the libraries is about 373,000 and the number of pamphlets exceeds 194,000.

The first three libraries above named are all housed in the library building of the State Historical Society on the lower campus of the University. This building, erected by the state of

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Wisconsin at a cost of $610,000, affords most convenient accommodations for students. In the planning of the building, the special needs of the University were consulted.

In the south half of the first floor are located four department libraries of the Historical Society, viz., documents, newspaper files, patents, and maps and manuscripts. In the north end of this floor is a series of six seminary rooms, allotted to American history, European history, political economy, political science, and mathematics. The greater part of the second or main floor is occupied by the general reading room and the periodical room, which are used in common by the two libraries. In these two reading rooms 275 readers may find ample accommodation at one time. In open cases in the reading room are shelved several thousand reference and "reserved" books. To these, as well as to the large collection of general and engineering periodicals in the adjoining periodical room, all readers have direct access. The main portion of both libraries is stored in the stack wing adjoining the delivery room on the west. Officers of the University have direct access to the shelves in all parts of the library, and students engaged in advanced work, upon recommendation of their instructors, are allowed access to those parts of the collection dealing with their special subjects.

The administrative rooms of the Historical Society and of the University library are situated at the south and north ends of the second floor respectively. The north end of the third floor is occupied by six seminary rooms, for the departments of German, Latin, Greek, Romance languages, English, and philosophy and education. The south end of the third floor contains a small lecture hall, a room for the Wisconsin Academy of Sciences, Arts, and Letters, and two small administrative rooms. The museum and gallery of the Historical Society occupy the fourth floor. The library is open fourteen and one-quarter hours daily, during the academic year, except on Sundays and legal holidays.

The Library of the University of Wisconsin, including its branches, contains about 147,000 volumes and 38,000 pamphlets. The catalogue is the usual dictionary card catalogue of authors, subjects, and titles in one alphabetical arrangement. Subject to certain restrictions, books may be drawn by all members of the University. Students are required to make a guarantee deposit of $2.00 with the bursar of the Regents before borrowing books

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from the library. This amount is refunded on presenting to the bursar the library deposit card properly endorsed by the librarian.

In general, the library aims to be uniformly developed in all fields, but appropriations and gifts in recent years have rendered it specially strong in the lines of political economy, political science, European history, and Germanic and classical philology.

The College of Law has a special library of 16,000 volumes; and the Washburn Observatory is provided with the Woodman Astronomical Library, now containing 2,600 books and 2,700 pamphlets. The Agricultural Library of about 10,000 volumes is located on the first floor of the new Agricultural Hall. In the reading room of the Engineering Building are kept the current files of the most important engineering and technical periodicals, together with a collection of engineering reference books.

The Library of the State Historical Society contains over 155,000 volumes and 156,000 pamphlets. While strong in all fields of American history and allied subjects, it is especially rich in manuscript and other material for the study of the history of the Mississippi valley. Its collections in English history are among the most extensive in this country.

The Library of the Wisconsin Academy of Sciences, Arts, and Letters is a valuable collection of reports and transactions of learned societies, comprising about 5,000 volumes. It is located in the library building, and constitutes a useful supplement to the other libraries in this special field.

The State Law Library in the Capitol numbers about 47,000 volumes. Students are allowed to draw books from the Madison Free Library, located in its new building. This is a well selected collection of over 19,000 volumes.

The excellence and extent of these libraries is such as to make Madison among the first, and in some departments the most important, of library centers west of the Alleghanies.

LABORATORIES

CHEMICAL LABORATORIES.—The chemical laboratories are located in the new chemical building, a large structure devoted exclusively to chemistry and pharmacy. On the first floor are the beginners' laboratories accommodating five hundred and forty students, and the laboratories of advanced inorganic chemistry accommodating eighty students. On the second floor are the lab-

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oratory of qualitative analysis accommodating one hundred and twelve students, the laboratories of quantitative analysis accommodating one hundred and twenty-one students, the food laboratory accommodating ten students, and the laboratory of practical pharmacy accommodating twelve students. On the third floor are the laboratories of physical chemistry accommodating fifty-six students, the laboratory of electrochemistry accommodating twenty-four students, the laboratories of organic chemistry accommodating sixty-four students, and the laboratory of pharmaceutical chemistry accommodating forty-eight students. The building also contains a large auditorium with a seating capacity for five hundred and four persons, and three additional lecture rooms, one on each floor, seating sixty persons each. On the second floor, there is a seminary room with a seating capacity for about sixty students, and on the third floor a library and reading room with a capacity for about fifty students. Besides the rooms mentioned, the building is well supplied with offices, private laboratories, smaller laboratories for special work, dark rooms, balance rooms and store-rooms. All the laboratories are well lighted and well equipped for the work for which they have been designed. The supply of chemicals and apparatus is unusually good, and the chemical library contains complete files of all the important chemical journals, and is well supplied with reference books and other works on chemistry and allied subjects. The chemical department is therefore able to offer exceptionally good facilities, not only for the pursuit of the usual courses in chemistry, but for original investigation as well. Research is especially encouraged, and such additional facilities as may be required for any special piece of work are furnished by the department when needed.

PHYSICAL LABORATORIES.—The instruction in the department of physics is designed to meet the needs of all classes of students, from those just entering, with no knowledge of the subject, to those who have been well trained, and who are prepared to continue in the more advanced courses or take up a line of original investigation.

The physical laboratories are located on the first floor and in the basement of Science Hall, and are commodious and well lighted. Besides the lecture room and the large apparatus room, the first floor contains the general physical laboratory, which is

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new and complete in its appointments in every respect. The lecture room has a seating capacity for 200 students, and is provided with all the appliances to facilitate a complete course of experimental lectures. In the basement are three large general laboratories for undergraduate work and a number of laboratories for special investigation, all of which are liberally supplied with piers to insure perfect stability of the instruments used. A well-equipped workshop under the direction of a skilled mechanic is an important feature of the department. Besides current supplied from the numerous dynamos in the University shops, the various rooms of the physical laboratory are connected with the electric light and power circuits of the city.

The physical apparatus includes, in addition to the equipment for demonstration purposes, an excellent collection of instruments adapted to measurement and investigation. The laboratory offers special facilities for carrying out graduate study and research.

MINERALOGICAL LABORATORY.—The laboratory of mineralogy is located on the second floor of Science Hall, where desks, apparatus and chemical reagents for courses in blow-pipe analysis and determinative mineralogy are provided for a class of thirty-four students. In the mineralogical lecture room are the necessary models of crystals in glass and wood, and working collections of crystals and minerals.

PETROGRAPHICAL LABORATORY.—This laboratory is supplied with polarizing microscopes, other necessary apparatus, and a very complete set of rocks and of rock and mineral sections, for courses in optical mineralogy and petrology. The general and special collections mentioned under the caption of Museums are available for all advanced students of petrology.

GEOLOGICAL SEMINARY.—This room is fitted out as a department library with a full equipment of reference books, maps, charts, etc.

BIOLOGICAL LABORATORIES.—The elementary laboratory for the departments of botany and zoology is arranged to accommodate seventy-two students, and is provided with compound microscopes, dissecting microscopes, and other apparatus necessary to an elementary course in botany and zoology.

BOTANY.—The laboratories for advanced work in botany are fitted up with the apparatus and reagents necessary for advanced courses in vegetable morphology, histology, physiology and cytol-

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ogy. A greenhouse and a laboratory, also under a glass roof, occupy the fourth floor of the south wing of Science Hall, and have been especially equipped for work on the development and physiology of the lower plants, and for plant pathology. A considerable amount of apparatus for work on the special physiology of the flowering plants is also provided. A special laboratory is devoted to work in general physiology, and all necessary reagents, ovens, paraffin baths and microtomes of various patterns are provided for histological and cytological work on cell structure and the phenomena of cell division, fertilization, chromosome reduction, etc. Provision is also made for work on the metabolism of cells and their reactions to physical stimuli. The equipment includes apparatus for the study of the effects of various thermal, light and gravitational stimuli on protoplasmic activities, a photometer, and a set of electrical measuring instruments, such as delicate d'Arsonval galvanometer, mil-ammeter, resistance measuring instruments, etc., for the study of electro-physiological problems.

Zoology.—For advanced work in zoology new laboratories have been equipped with all necessary apparatus for regular classes, or for any special work that the student may elect. Compound and dissecting microscopes, microtomes, paraffin baths, reagents, etc., are included in the equipment and are at the disposal of the students. In connection with much of the work done in zoology, use is made of the museum, which contains, besides the regular exhibit collection, special sets which have been purchased especially for use in the lecture room and laboratory. These include cases illustrating protective coloration, mimicry, sexual dimorphism, etc. Many models are used in the laboratory; a nearly complete set of Zeigler models illustrating life-histories of invertebrates, besides a large number of Blaschka models, especially rich in protozoa and coelenterata. A large collection illustrating the life histories of insects, both alcoholic and dry preparations, while exhibited in the museum, have been purchased especially for lecture and laboratory work.

Anatomy.—There are laboratories devoted to human anatomy, vertebrate anatomy, histology, and embryology. These laboratories are thoroughly equipped with apparatus, models, and materials for advanced as well as elemenary work.

Physiology and Physiological Chemistry.—These laboratories

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occupy two floors in the south wing of the Chemical Engineering Building. They contain a thorough equipment for elementary and advanced work in experimental physiology and in physiological chemistry.

Bacteriology.—The laboratories for the College of Letters and Science are located on the third and fourth floors of South Hall; those for the College of Agriculture on the first and second floors of the Agricultural Building. The laboratories in South Hall consist of a suite of twelve rooms, including a large general laboratory and an advanced laboratory with special rooms for individual research.

THE AGRICULTURAL LABORATORIES.—The buildings of the College of Agriculture include thoroughly equipped laboratories, which are used for the instruction and research work of the College and Experiment Station and are available for students, offering special opportunities to those pursuing advanced work. In the several departments special lines of work are conducted with which the students may come in contact and secure special training along certain lines of agricultural science. The Chemistry department is by state law entrusted with the licensing and analyzing of commercial concentrated feed stuffs and commercial fertilizers sold in the state. The Horticultural department is by legislative act placed in charge of nursery inspection. The Agricultural Bacteriological department is closely associated with the State Live Stock Sanitary Board in matters relating to animal diseases. The Dairy department conducts extensive creamery operations using more than four million pounds of milk annually. The Soils department is in charge of extensive drainage, soil, fertilizer and improvement projects. The Agronomy department has conducted many cooperative and direct experiments in the breeding of grains and forage plants. The Agricultural Engineering department is testing various farm machines and implements for farm structures, etc. The University farm with its selected flocks and herds is in use at all times for experiments in breeding and feeding and live stock management. Students in the College of Agriculture have every opportunity to observe and frequently to assist in these activities.

THE STATE HYGIENIC LABORATORY is located on the second floor of Agricultural Hall and the abundant material here furnished for

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diagnostic purposes is also utilized for class room and research work.

PATHOLOGY AND MEDICAL BACTERIOLOGY.—These are at present located in South Hall. They are equipped both for elementary and advanced work.

UNIVERSITY MUSEUMS

OFFICERS

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
ROBERT A. HARPER, Ph. D., Professor of Botany, Curator for Botany.
WILLIAM S. MARSHALL, Ph. D., Associate Professor of Entomology, Curator for Zoology.
WILLIAM S. MILLER, M. D., Associate Professor of Vertebrate Anatomy, Curator for Vertebrate Anatomy.
C. K. LEITH, Ph. D., Professor of Economic and Structural Geology, Curator for Economic and Structural Geology.
ROLLIN H. DENNISTON, Ph. D., Curator for Pharmaceutical Collections.

The University museums comprise the Anatomical Museum, the Geological and Mineralogical Museum, the Biological Museum, the Herbarium, and the Drug Cabinet, which occupy respectively rooms on the second, third and fourth floors of Science Hall. The collections in the College of Engineering and the College of Agriculture are described in later pages.

When the museums are not open to the public, access may be gained by visitors at all reasonable hours by calling upon the janitor of the building.

THE ANATOMICAL MUSEUM is at present located on the fourth floor of Science Hall. It is primarily designed as an aid in teaching and investigation, and includes both human and comparative vertebrate anatomy.

In osteology there is a complete series of human skeletons from the embryo through foetal life up to, and including, the adult. The collection includes a number of articulated and disarticulated skulls. In addition to the above there is a representative collection of vertebrate skeletons displayed in the Biological Museum. Arthrology is represented by a series of preparations which show the ligaments of all the principal joints. Myology,

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angiology, and splanchnology are represented by numerous preparations including dissections and frozen sections, the best of the His models made by Steger, of Leipzig, some of which represent the viscera *in situ*, while others show the individual organs removed from the body. In neurology the collection includes the plaster casts of brain dissections by Steger and by Fuller, the series of His models showing the development of the brain, made by Ziegler, and models showing the principal fiber tracts of the cord and medulla. Peripheral nerves and sense-organs are illustrated by models by Tramond and by Auzoux. In embryology there is a series of the models made by Ziegler, a collection of embryos, human and vertebrate, preserved in formalin, and a series of dissections of embryos of various ages. In the museum there are a number of models and special preparations made in the laboratories for teaching purposes or to illustrate special investigations.

THE GEOLOGICAL AND MINERALOGICAL MUSEUM has been built up for the most part with special reference to instructional work. It is divided into four parts, one devoted to systematic paleontology, one to systematic collections of minerals and rocks, one to a systematic collection of ores, and another to relief models illustrating topographic and geologic features. The paleontologic section includes the Powers collection of Wisconsin fossils and also the Wisconsin Academy of Sciences, Arts and Letters collection containing the type fossils described in the volumes of the first Wisconsin Geological Survey of Wisconsin.

A large amount of the general illustrative material, not coming directly under the above heads, is exhibited in cases in the halls of the geological department.

A number of additional collections are at present stored in the lecture rooms, laboratories and offices, and are accessible to students interested. These include a collection of 40,000 specimens and 20,000 thin sections, belonging to the Pre-Cambrian and Metamorphic Division of the United States Geological Survey, one of the largest of its kind in the world; a large collection of New England rocks belonging to the same survey; the collections of the old Wisconsin Geological Survey; and the Hobbs collection, mainly of European rocks, supplied with over 1,000 thin sections.

THE ZOOLOGICAL AND BOTANICAL MUSEUM is in the central room of the fourth story of Science Hall. Among the specimens at

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present placed in the cases may be named a good collection of vertebrate skeletons; a complete set of Ziegler models illustrating various stages in the development of vertebrates and invertebrates; models of the brain and sense organs; a large number of Blaschka glass models of invertebrates; an alcoholic collection of invertebrates from the Naples Zoological Station; representative collections of echinoderms, corals, and mollusks. The botanical cases contain a collection of Auzoux models of flowers, a collection of specimens of wood and of the fleshy woody fungi of the state. The Owen collection of Lepidoptera, comprising 5,000 species, and over 20,000 specimens, is deposited in Science Hall.

THE HERBARIUM of the University (rooms 41 and 51, Science Hall) includes the Lapham collection, chiefly of flowering plants, purchased by the State from the estate of I. A. Lapham, of Milwaukee. This collection, which contained about 8,000 species, has been mounted and arranged and is now accessible for study. The Wisconsin plants have been separated from the rest and it is the intention to make them the nucleus of a complete representation of the Wisconsin flora. Large additions have been made to this herbarium by Professors L. S. Cheney and H. L. Russell. Mr Lapham's collection also included a considerable number of algæ, lichens, and mosses. The collection of mosses has been very greatly extended by gifts, purchases, exchanges, and collections acquired, so that it now includes almost all of the species known to North America, besides a large number of those from other countries. Many valuable types and sets of exsiccati are included. The collection of algæ and parasitic fungi contains the principal North American exsiccati as well as large local collections. There is also a large and rapidly growing collection of alcoholic and dried specimens of the fleshy fungi of the State.

The biological seminary room contains a department library with the main reference books and periodicals in zoology and botany, and card catalogues of biological literature.

THE DRUG COLLECTION.—At present this collection contains about 4,500 sample specimens of drugs for purely illustrative purposes. Each year additions come to it as contributions from various sources. Among the larger contributors are Schimmel & Co., of Leipsig, Germany; Lehn & Fink, Parke, Davis & Co., and Gilpin, Langdon & Co. The collection is well supplied with drugs of Asiatic origin. Notable among them are a collection of fifty

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Ceylon drugs and medicines and a collection of more than one hundred Malay medicines.

THE CHEMICAL COLLECTION.—The collection here described is located in the new Chemistry Building. Through the liberality of the United Alkali Company of England, some fifty specimens of their products in various stages of manufacture were obtained. Dr. William Simon, of Baltimore has contributed a series of specimens illustrating the manufacture of bichromate and ferrocyanide of potassium. Fries Bros. of New York have donated a number of synthetics used in perfumery. A similar collection has recently been received from the Herbene Chemical Co. of New York. A cabinet for volatile oils contains fine collections from Schimmel & Co., of Leipsig, Germany; Roure Bertrand Fils, of Grasse, France; Dodge and Olcott, New York; Lautier Fils of Grasse, France; H. Haeusel of Prua, Germany; and others. A cabinet for dye-stuffs contains over 500 samples of artificial dye-stuffs from the Farbenfabriken of Eberfeld & Co. of New York, Farbwerke vorun Meister Lucius and Bruening of Hoechstall; Casella Color Company, New York; Badische Company, New York; Barret Mfg. Co., Philadelphia. These collections are supplemented by numerous volumes of richly illustrated descriptive matter, to which additions are being constantly received. Large and valuable collections of modern synthetic new remedies have been received from Schering and Glatz, from the Farbenfabriken of the Eberfeld Company, and from Merck & Co., all of New York. Numerous smaller donations have been received within recent years.

THE WASHBURN OBSERVATORY

The Washburn Observatory is primarily an institution for research, and an account of its equipment and the character of the work there undertaken may be found on a later page. (See Index.) But it is also utilized as a part of the instructional equipment of the University for students of all stages of advancement. It is open to the public on the first and third Wednesday of every month, from 7:30 to 9:30 P. M., provided the evening is clear, and at these times visitors may look through the large telescope and examine the most interesting objects of the sky.

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LOCAL OFFICE, U. S. WEATHER BUREAU

As a result of the policy of the University of Wisconsin to cooperate with the scientific branches of the National Government, the local office of the U. S. Weather Bureau is located at the University and the official in charge lectures in the University on meteorology and climatology. (These courses are described on later pages, see Index under Meteorolcgy.)

The functions of the local office of the Weather Bureau are (1) to observe the meteorological elements twice daily and to exchange the results by telegraph with other stations for use in forecasting the weather; (2) to prepare and distribute to the public the daily weather map, and forecasts, and other weather information; and (3) to maintain in operation a set of automatically recording instruments and to tabulate therefrom data for use in climatology.

The equipment of the station includes eye-reading instruments for measuring the barometric pressure, temperature, humidity, rainfall, and direction and velocity of the wind, and automatic registers for making continuous records of the barometric pressure, temperature, humidity, rainfall, direction and velocity of the wind, and of the duration of sunshine.

The exposed apparatus is mounted upon the roof of North Hall. The office where the registers are in operation, is in Room 84 in the same building. It is open to the public from 9 a. m. to 4 p. m. daily, except Sundays and holidays. Visitors are especially welcome during the afternoon hours. The forecasts and information relative to weather or climate may be obtained by telephone at any time.

The student's meteorological observatory is also located on the roof of North Hall. Its equipment consists of a complete set of direct reading apparatus, of the same type as that used by the Weather Bureau, and the following additional instruments, viz.: a nephoscope for observing the direction, and velocity of clouds, an evaporimeter, and a set of solar and terrestrial radiation thermometers. The equipment of the department includes a large number of meteorological and climatological charts, and a full series of lantern slides illustrating meteorological phenomena.

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GENERAL INFORMATION

UNIVERSITY REGULATIONS

THE UNIVERSITY YEAR

The regular University year opens on the last Wednesday in September. There are two semesters in each year. The first semester ends on the Friday at the middle of the University year, not including recesses. The second semester begins on the succeeding Monday, and ends with the annual Commencement, on the thirty-ninth Wednesday of the University year.

The Christmas vacation ordinarily begins at the end of the second day before Christmas, and closes at the beginning of the second day after New Year's. When, however, Christmas falls on Monday or Tuesday, the vacation begins at the end of the Friday preceding, and when New Year's falls on Thursday, or later in the week, the vacation closes at the beginning of the following Tuesday. The Easter recess begins on Thursday morning before Easter Sunday, and closes on the morning of the following Tuesday.

STUDENT ADVISERS

In the College of Letters and Science, the College of Engineering, and the College of Agriculture, each student is placed under the immediate charge of a member of the faculty, who acts as his adviser in matters pertaining to University work. The student must consult his adviser in choosing studies, and obtain his approval before classes can be entered.

The system of student advisers varies somewhat in the colleges mentioned above, and does not obtain in the College of Law and the School of Music.

INFORMATION FOR WOMEN STUDENTS

The Adviser of Women gives general and individual attention to the academic and social welfare of women students.

For the benefit of those who are not accommodated in Chadbourne Hall (see Index) she has prepared a list of addresses where rooms for young women may be obtained. Each house on

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the list has been visited by her, and while responsibility for them cannot be assumed by the University, they are believed to be suitable homes for women students.

By a resolution of the Self Government Association women students will occupy rooms only in such lodging houses as accommodate women exclusively, and in which a parlor is provided for the reception of visitors. Exceptions to this rule will be only by permission of the Adviser of Women. The houses on the prepared list meet these requirements, and the list may be had upon application. All arrangements must be made directly with the persons mentioned in the list, and should be made early by those who desire a wide choice of rooms. All women students are required to report to the Adviser of Women to register their addresses, and to be directed if rooms have not been secured. All changes of address are expected to be reported promptly.

A trained nurse resides at Chadbourne Hall, and her services are free to the residents and to other women students who notify the Adviser of Women of illness.

A commodious new building will be opened at the beginning of the year 1909–10, for the use of the women of the University. It provides, in addition to a finely equipped gymnasium, restaurant and rest room, a meeting place for student organizations, and a center for the social life of the University.

Mrs. Cora Stranahan Woodward, the Adviser of Women, invites correspondence with parents and guardians, and gladly co-operates with them regarding the welfare of students.

HONORS

Honors are given at graduation for special work of high order of excellence done in any department. Such honors will be voted by the faculty to those students whose graduation theses show exceptional excellence, and who have completed with unusual success a long course of study in the department in which the thesis is presented. The thesis must show work additional to all requirements for graduation equal to two hours a week for one year. Students desiring to become candidates for special honors in any department must make application to the faculty, at the opening of the second semester, through the professor in whose department the honors are sought.

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UNDERGRADUATE SCHOLARSHIPS AND FUNDS

SCHOLARSHIPS FOR UNDERGRADUATES

The Amelia H. Doyon Scholarships

By the will of Mrs. Amelia H. Doyon, late of Madison, the University has received a gift of $5,000 to be known as the Amelia H. Doyon Fund. The income from this fund is to be divided into two equal parts, to be designated as the Amelia H. Doyon Scholarships, which are to be given to young women in attendance at the University, to be selected by the faculty. In making this selection the faculty is to take into consideration the scholarship or standing of the persons selected and their need of financial help. Neither of these scholarships is to be bestowed on any young woman who has not been in attendance as a student at the University of Wisconsin for at least one year.

The Lillian Paige Allis Scholarship

Through the liberality of Mrs. Lillian Paige Allis, of Madison, the Department of German offers two scholarships, one open to juniors and the other to seniors, having a value of $50 and $100 respectively.

The Henrik Wergeland Scholarship

Hon. Torger G. Thompson, of Deerfield, has generously provided for a scholarship, of the value of $200, to be awarded to students of Norwegian ancestry.

The Christian R. Stein Scholarship

By the will of the late Christian R. Stein, of Madison, a bequest of $1,000 was made to the University, the interest of which maintains a scholarship to be given by the faculty to a student of the University who has been in attendance at least one year.

The Henry Gund Scholarship in German

Mr. Henry Gund, of La Crosse, has generously established a fund of $5,000 to maintain a scholarship in German literature.

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LOAN FUNDS AND STUDENT AIDS

The John A. Johnson Fund

The University is indebted to the liberality of the Hon. John A. Johnson, late of Madison, for a fund of $5,000 the interest of which is loaned to students. The sum obtained by one student in one year shall not exceed $50, and the total amount shall not exceed $200. At present the benefits of the fund are limited to Scandinavian students. The income of this fund is loaned by the Faculty Committee on Loan Funds.

The Graduating Class Fund

The class of 1900 gave to the University several hundred dollars, the profits of the Senior Class Play, as the nucleus of a loan fund for the aid of needy students, to which the succeeding classes have made substantial additions. The money hitherto received has been loaned to students on promissory notes. This fund is under the charge of the Faculty Committee on Loan Funds, consisting of the President of the University, Professor Olson, Chairman, and Professors Gay, R. B. Scott and Mrs. Woodward.

The Secretary's Fund

The Secretary of the Regents in 1900 established a fund of $500 for the aid of meritorious students. Additions to the fund have been made by others. No loan shall exceed $50 in a single year, and the aggregate loans to any person shall not exceed $200.

The Geneva Loan Fund

This fund of $450 was provided in December, 1903, by Mrs. E. P. Allis and Mr. Louis Allis, of Milwaukee, and by Mr. Frank W. Allis (member of the Short Course class of 1897), proprietor of Monona Farm, Madison. In February, 1905, F. W. Allis gave $150 additional, and in October of the same year Louis Allis contributed another $150 so that the fund amounts to $750. It is available to needy members of the Short Course classes of the College of Agriculture only, in small amounts. Loans from this fund may be made through the Dean of the College of Agriculture.

Employment Bureau

The Young Men's Christian Association of the University conducts an employment bureau for the benefit of those students

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who find it necessary to contribute to their own support. Students who are willing to do good work can, in most cases, be supplied with remunerative employment. The positions that are most frequently supplied are: waiting on table, tending furnace, assisting in the house, caring for lawns, and serving as stenographer, typewriter, or clerk. The general secretary of the Young Men's Christian Association has direction of the employment bureau, having his office at Association Hall. Students who must earn part of their expenses should communicate with the secretary before they come to the University.

The Albert O. Trostel Prize in Debate

A sum of $500 was given, in 1905, by Mr. Albert Trostel of Milwaukee to be used not to exceed $100 each year, for the promotion of intercollegiate debating in the University. The prizes may be in the form of medals, or in such other form as will, in the judgment of the President of the University and the professor of rhetoric and oratory, best promote excellence in such intercollegiate work.

SOCIETIES AND PUBLICATIONS

LITERARY AND SCIENTIFIC SOCIETIES

The literary and debating societies of the University have played so important a part that they may almost be said to constitute a department by themselves. The Athenæan and the Hesperian societies are nearly as old as the University itself, Athena having been organized in 1850, and Hesperia in 1854. Philomathia was organized in 1886, and Olympia in 1902. These societies are sustained with great enthusiasm, and are an important means of intellectual training. Athena, Hesperia, and Philomathia form what is known as the Joint Debate League, which arranges annually a public debate between two of these three societies. This joint debate has been a feature of the University for nearly forty years. These four above-mentioned are men's societies in the College of Letters and Science. The debating society of the College of Law is Forum-Columbia. The young women maintain two literary societies, Castalia, estab-

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lished in the early years of the University, and Pythia, in 1902. These seven societies form the Oratorical Association, which has charge of inter-collegiate debating and oratory. This association is a member of a pentangular debating league, composed of the universities of Illinois, Iowa, Minnesota, Nebraska, and Wisconsin. Each university meets two of the others each year in debate in rotation, so that in the complete round each of the universities meets each of the others twice. A series of preliminary contests, held at the middle of each year, is made up of a sophomore contest, a junior contest, a junior-ex contest, (between representatives of each of the literary societies chosen from the junior class), and a senior contest. The winner in this series is chosen as the representative of Wisconsin in the Northern Oratorical Contest, in which he meets representatives from the universities of Chicago, Iowa, Michigan, Minnesota, Northwestern, and Oberlin. Another contest is held in the autumn of each year to select a representative to compete with representatives of the other universites for the prize offered by the Hamilton Club of Chicago, nine universities being represented.

The most important scientific organization in the University is the Science Club, which includes both officers of instruction and advanced students, and seeks to promote an interest in scientific study and research. It conducts public meetings for the discussion of scientific topics of current interest. A bronze medal executed by T. Moring, London, is annually awarded by the Club for the best baccalaureate thesis on a scientific subject. The Historical and Political Science Association and the Language and Literature Club are new societies organized by instructors and graduate students for the purpose of fostering advanced work. In various departments of the University there are journal clubs or societies for furthering the special work of the departments. Among these are the *Germanistische Gesellshaft;* a Scandinavian society, *the Nora Samlag;* the Romance Language Club; the Pharmaceutical Society; the Classical Club; the Physics Journal Club; the Biological Club, and the Chemical Club. In other departments, where no such organization has been affected, similar results are reached by means of the various seminaries. The graduate students of the University maintain a Graduate Club. The University Press Club, the Women's Press Club and the Hoard Press Club are composed of students preparing for journal-

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ism. A Music Students' Club has been organized to encourage among the students a more serious study of the great composers and their works. The Haresfoot Club is maintained by university dramatic talent, and presents a play annually; the Red Domino Club is a similar organization maintained by young women; and the Edwin Booth Club aims to promote dramatic interest and train dramatic talent. Phi Alpha Tau is a semi-honorary fraternity devoted to the interests of oratory and public speaking. Admission is determined by the members, largely on the basis of native ability and proven success along these lines.

SOCIAL AND RELIGIOUS ORGANIZATIONS

The women have organized a Woman's Self Government Association, which seeks to further in every way the unity of spirit of women in the University, to increase their sense of responsibility toward each other, and to be a medium by which the social standard of the University can be made and kept high. The religious organizations of the University include the Young Men's Christian Association, and the Young Women's Christan Association. Honorary fraternities are represented by Phi Beta Kappa, established in 1898, Tau Beta Pi, the honorary engineering fraternity, established in 1899, Alpha Zeta, the honorary agricultural fraternity, established in 1906, the Phi Lambda Upsilon, the honorary chemical fraternity, established in 1906, and Sigma Xi, the honorary scientific fraternity, established in 1907. The Iron Cross, the honorary senior society, is composed of students who have distinguished themselves in the various lines of student activity.

PUBLICATIONS OF THE UNIVERSITY

The Bulletin of the University of Wisconsin is published bimonthly at Madison. The Economics and Political Science Series, the History series, the Philology and Literature series, the Science series, the Engineering series, and the University Extension series contain original papers by persons connected with the University. A check list showing the issues to date in the above-named series and giving more detailed information regarding other publications of the University may be obtained on application to the University Editor.

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The general series of the Bulletin includes the annual catalogue, special announcements of the various schools and colleges, etc. A directory of officers and students of the University is issued in the early part of each academic year, and a general catalogue of officers and graduates of the University is published once in five years, the last having been issued in 1907.

The High School series comprises a number of manuals designed to assist secondary school teachers in the subjects included in the high school curriculum.

From Washburn Observatory are issued the Publications of Washburn Observatory; from the Agricultural Experiment Station, bulletins and annual reports; and from the office of the Farmers' Institute, the Wisconsin Farmers' Institute Bulletin.

STUDENT AND ALUMNI PUBLICATIONS

The publications issued by the students include the Daily Cardinal; the Sphinx, a bi-weekly illustrated, humorous publication; The Wisconsin Literary Magazine, a monthly; the Badger, the junior class annual; the Wisconsin Engineer, a quarterly publication of the engineering students; and the Student Farmer, a monthly publication issued by agricultural students. The Wisconsin Alumni Magazine, a monthly journal, is the official organ of the alumni.

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ADMISSION TO THE UNIVERSITY

METHODS OF ADMISSION

Students are admitted either upon examination at the University, or upon certificates from accredited schools, except that students and graduates of the Normal schools of this state, students from other colleges and universities, and adult special students, are admitted in accordance with the provisions stated below.

For the examinations at the University, see page 87.

TIME OF ENTRANCE

New students ordinarily enter the University at the opening of the first semester; but there are advantages in beginning work in the Summer Session, not only to the student who needs to strengthen his preparation, but also to the strong student, who through the advantages offered by the Summer Session may complete his university course *in three years*. For the courses, see Index under Summer Session.

In a general way it is, moreover, advantageous to any student to begin work in the Summer Session, for the following reasons: He becomes familiar with university methods of instruction before the heavier work of the year begins; he receives more individual attention, as the classes in summer are smaller; his experience and the advice of his instructor will enable him more wisely to shape his course.

New students may enter at the beginning of the second semester, but they should be on hand the week preceding, in order to make the necessary arrangements as the regular work of the semester begins promptly on Monday morning.

ENTRANCE REQUIREMENTS

The requirements for admission are stated in terms of units. The term *unit* means the equivalent of five recitations a week for one year in one branch of study. In closely allied branches not usually taught in periods of one year each, such as physiology

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and zoology, units may be constructed by adding the respective time values of such studies. In any subject three recitations a week for one year and a half may be counted as one unit.

Fourteen units are required for admission, of which six are required of all, and eight are elective. For a description of the amount of work expected in each of the subjects named in the entrance requirements, see Index, under Preparatory Work.

I. The following six units are required of all:

ENGLISH ..... 2 units
MATHEMATICS ..... 2 units
LATIN, GERMAN, OR FRENCH ..... 2 units

II. In addition to the requirements under I, eight units must be offered from the following elective subjects:—

ENGLISH ..... 1 or 2 units
MATHEMATICS ..... ½, 1, 1½, or 2 units

FOREIGN LANGUAGES:

Greek ..... 1 or 2 units
Latin ..... 1, 2, 3, or 4 units
German ..... 1, 2, 3, or 4 units
French ..... 1, 2, 3, or 4 units
Spanish ..... 1 or 2 units

HISTORY ..... 1, 2, 3, or 4 units
Ancient History ..... 1 unit
Medieval and Modern History ..... 1 unit
Medieval and English History ..... 1 unit
English History ..... 1 unit
United States History ..... 1 unit

CIVICS ..... ½ or 1 unit
Commercial Law may be offered under Civics ..... ½ unit

ECONOMICS AND COMMERCIAL GEOGRAPHY, combined, 1 unit; separately, ½ unit each.

SCIENCE ..... 1, 2, 3, or 4 units
Botany ..... 1 or 2 units
Chemistry ..... 1 or 2 units
Physics ..... 1 or 2 units
Physical Geography and Geology ..... 1 or 2 units
Physiology ..... ½ unit
Zoology ..... 1 or 2 units

MANUAL TRAINING, OR OPTIONAL SUBJECT (See below) ..... 1 unit

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LIMITATIONS.—Not more than four of the required fourteen units will be accepted in any one subject. No foreign language course of less than two units will be accepted from students presenting only one foreign language. Students who present not less than three units of one foreign language may receive credit for one unit of a second foreign language.

OPTIONAL SUBJECT.—An optional subject is any subject of the student's high school course not specified in the list of elective subjects. When manual training is not offered, one optional subject of one unit, or two of one-half unit each, may be offered. No optional subject may be offered with manual training.

ADMISSION WITHOUT FOREIGN LANGUAGE.—Students may be admitted without foreign language under the following conditions: (1.) They must offer fourteen units subject to all the limitations stated above, except that one optional unit may be offered with manual training, or two optional units without manual training. (2.) The language requirements must be met before graduation. This will ordinarily require extra work to the extent of four hours a week for one year, which will not be credited as part of the number of unit-hours required for graduation in the several colleges and courses. Opportunity for making up the deficiency in language will be offered by the University.

ADVISED GROUPING OF PREPARATORY SUBJECTS.—Students are advised to adapt their preparatory work to the course that they expect to pursue in the University. Attention is called to the requirements for admission to the several colleges and courses. and to the statements of the several departments concerning the preparation best adapted to the work of each.

REQUIREMENTS FOR ADMISSION TO THE SEVERAL COLLEGES AND COURSES

COLLEGE OF LETTERS AND SCIENCE.—The studies under 1, and electives under II, to make fourteen units.

Students entering this college are advised to present Latin and a second foreign language, to the amount of at least six units. The requirements in foreign language for the degree of Bachelor of Arts are as follows: 16 unit-hours for those who offer four years or more of language at entrance; 24 unit-hours for those who offer less than four years of language at entrance. (See Index under Requirements for Degrees.)

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COLLEGE OF ENGINEERING.—The following units are required of all:—

ENGLISH .....2 units
ALGEBRA .....1½ units
GEOMETRY, Plane and Solid, one year.....1 unit
*or Plane 1 year and Solid ½ year.....1½ units
GERMAN OR FRENCH.....2 units
or LATIN.....4 units
PHYSICS .....1 unit

The remainder of the required fourteen units must be made up from elections under II. Students are advised to present chemistry, advanced mathematics, and additional work in German or French. Students who enter without foreign language will find it difficult to complete any of the courses in engineering in four years.

All students entering the College of Engineering are required to pass an examination in algebra. It is essential that students in the engineering courses shall possess a good working knowledge of algebra *at the time when they begin their course*, and it is the purpose of the examination to secure this by requiring a review of the subject shortly before entering the University. Students failing in the examination will be required to make up their deficiency by outside study.

For the requirements for admission to the advanced engineering courses leading to a professional degree, see Index under Advanced Engineering Courses.

COLLEGE OF AGRICULTURE.—The studies under I, and electives under II, to make fourteen units.

COLLEGE OF LAW.—(1.) Candidates for a degree: Credits equivalent to the work of the Freshman and Sophomore years in the College of Letters and Science. (2.) Not candidates for a degree: The studies under I, and the electives under II, to make fourteen units.

COURSE IN COMMERCE.—The studies under I, and electives under II, to make fourteen units.

PRE-MEDICAL COURSE.—The studies under I. and electives under II, to make fourteen units. Students entering this course are advised to present two units of Latin, inasmuch as the medical

* Beginning with 1912 one unit in Plane and one half unit in Solid Geometry will be required.

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schools require this amount of Latin for entrance. The University offers a beginner's course in Latin, without credit toward a degree. Students are also advised to present four units of German.

COURSE IN CHEMISTRY.—The studies under I, and electives under II, to make fourteen units.

COURSE IN PHARMACY.—Four Year Course: The studies under I, and electives under II, to make fourteen units. No practical experience in pharmacy is required. Two Year and Three Year Course: (1) Graduates from high schools are admitted without examination and without practical experience in a drug store. (2) Non-graduates are admitted if they comply with the following requirements:

1. They must be at least eighteen years of age.
2. They must present satisfactory certificates of at least one year's attendance from some standard high school, or its equivalent from a similar institution.
3. The time intervening between the secondary education and the college course should have been spent in a drug store, where physicians' prescriptions are regularly compounded.

SCOPE OF THE PREPARATORY WORK

The following description serves to indicate the extent of the preparation expected in each of the several subjects named in the preceding requirements for admission:—

English

ENGLISH. 2, 3, or 4 units. All applicants for admission must present two units in English, one of which must consist of composition, and one of the reading and study of English classics. The two units required in English correspond in amount and character to the work of the first two years of the standard high school course, in which one-half of the time is devoted to theme-writing and instruction in the principles of composition, and one-half to the careful study of a number of English classics. It is recommended that applicants present at least three units in English, the third unit to consist of additional work in composition, and either (1) an outline history of English and American literature with the reading and study of representative selections of each period, or (2) the intensive study of a few typical examples of the novel, the drama, the lyric, and the essay. Four units of English should include composition, and both (1) and

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(2) given above, in addition to the two required units. A complete statement of the work for each unit of preparation is given in No. 1 of the High School Series of the Bulletin of the University of Wisconsin, entitled *The High School Course in English.*

COMPOSITION AND RHETORIC. Systematic practice in theme-writing with instruction in the principles of composition and the forms of discourse must form an important part of each unit of English presented for entrance. Every student entering the University is examined as to his ability to express himself in clear, correct, idiomatic English. The test consists in requiring the student to write an essay on a familiar subject, in which he plans his work by paragraphs, and constructs both paragraphs and sentences in accordance with the simpler principles of composition. No student will be passed in this test and permitted to pursue the course in Freshman English whose work shows serious weakness in spelling, punctuation, grammar, sentence construction, or division into paragraphs. Facility of expression will not be sufficient to offset marked deficiency in spelling, punctuation, grammar, or sentence structure. Students whose preparation in English composition is found to be deficient must make up such deficiency in one year under penalty of being dropped from the University.

READING AND STUDY OF ENGLISH CLASSICS. 2 units. The two units in English required of all applicants for admission must include the thorough study of at least ten of the English classics on the list of uniform college entrance requirements in English, or their equivalents. The first aim in the reading and study of these selections should always be to understand fully the thought expressed. It is necessary to understand each idea as expressed in the word, the allusion, or the figure of speech; to combine the ideas to get the thought of the sentence; and to follow the development of the thought from sentence to sentence in order to grasp the meaning of the paragraph, essay, story, or poem as a whole. The study of the form, the structure, the style, and the purpose of the selection; a knowledge of the author's life; the consideration of the relation of the selection to the age in which it was written; and a comparison of it with other works of the same type, all give a better understanding of the classic. Particular attention should be given to words and idioms in the reading with a view to increasing the student's command of language.

HISTORY OF ENGLISH AND AMERICAN LITERATURE. 1 unit. In

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addition to the two required units in English, applicants for admission may present one unit in history of English literature, or in the history of English and American literature. In designating this unit as a study of English and American literature, it is intended that the greater part of the time should be devoted to the reading of selections from representative authors of each period; and that in the study of the history of literature which should not occupy more than one-quarter of the time, emphasis should be placed on general movements and tendencies in literature as shown in the selections studied. In the history of English literature characteristic selections from most of the following authors should be read: Chaucer, Shakspere, Bacon, Milton, Pope, Addison, Goldsmith, Gray, Burns, Scott, Wordsworth, Coleridge, Keats, Shelley, Tennyson, Browning, Lamb, George Eliot, Dickens, and Thackeray. In connection with the history of American literature the student should be familiar with representative works of Longfellow, Whittier, Bryant, Holmes, Irving, Hawthorne, Cooper, Poe, Lowell, and Emerson. A study of the principles of composition and the application of them in theme-writing must be included in this unit.

ADVANCED STUDY OF CLASSICS. 1 unit. Besides the two units of required work in the reading and study of English classics, students may offer one unit representing advanced work in the study of literature corresponding to the fourth year of the standard high school course in English. This should consist of a thorough and intensive study of the form, the structure, and the style of typical examples of the novel, the drama, the lyric, and the essay. At least one work from each of the following four groups should be included for this unit: (1) Thackeray's *Henry Esmond;* Hawthorne's *The House of Seven Gables;* Dicken's *A Tale of Two Cities;* George Eliot's *Silas Marner;* (2) Shakspere's *Macbeth, Hamlet, King Lear;* (3) Palgrave's *Golden Treasury* (First Series), Books II and III, or Book IV; Milton's *Lycidas, L'Allegro,* and *Il Penseroso;* (4) Burke's *Speech on Conciliation;* Webster's *First Bunker Hill Oration,* and Washington's *Farewell Address;* Macaulay's *Life of Johnson, Essay on Milton;* Carlyle's *Essay on Burns.* A study of the principles of rhetoric, with frequent and systematic theme-writing, must form a part of this unit.

LIST OF READINGS FOR FOUR UNITS. The following list con-

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tains the college entrance requirements in English for the years 1908 to 1911 and other selections adapted for reading and study. The Roman numerals following the titles indicate the unit or units for which the books may most profitably be read; Addison's *De Coverley Papers* (II, III); Addison and Steele's *Spectator* (II, III); Arnold's *Sohrab and Rustum* (II); Bacon's *Essays* (III); Blackmore's *Lorna Doone* (IV); Bunyan's *The Pilgrim's Progress, Part One*, (I, III); Byron's *The Prisoner of Chillon*, and *Mazeppa* (III); Browning's *Cavalier Tunes, The Lost Leader, How They Brought the Good News from Ghent to Aix, Evelyn Hope, Home Thoughts From Abroad, Home Thoughts From the Sea, Incident of the French Camp, The Boy and the Angel, One Word More, Herve Riel, Pheidippides* (III); Bryant's Translation of the *Iliad* and *Odyssey* (selection) (I, II); Burroughs' *Birds and Bees, Sharp Eyes, A Bunch of Herbs*, etc. (I, II); Burke's *Conciliation With America* (IV); Carlyle's *Essay on Burns* (III, IV); Carlyle's *Heroes and Hero Worship* (III, IV); Chaucer's *Prologue* (III); Coleridge's *Ancient Mariner* (II, III); Cooper's *Last of the Mohicans* (II, III); De Quincey's *Joan of Arc* and *The English Mail Coach* (III, IV); Dickens's *A Tale of Two Cities* (II, IV); Dickens's *Christmas Carol* (I); Emerson's *Essays* (selected) (III, IV); Franklin's *Autobiography* (I, II, III); Mrs. Gaskell's *Cranford* (III, IV); George Eliot's *Silas Marner* (IV); Goldsmith's *The Deserted Village* (II, III); Goldsmith's *Vicar of Wakefield* (II, III); Hawthorne's *House of Seven Gables* (III, IV); Hawthorne's *Twice Told Tales* (I); Irving's *Life of Goldsmith* (II, III); Irving's *Tales of a Traveler* (I, II); Irving's *Alhambra* (II); Irving's *Sketch Book* (I, II); Lamb's *Essays of Elia* (II, III); Lincoln's *Gettysburg Speech*, etc., (II, IV); Longfellow's *The Courtship of Miles Standish* (I); Lowell's *Vision of Sir Launfal* (I, II); Macaulay's *Lays of Ancient Rome* (I); Macaulay's *Essay on Addison* (III, IV); Macaulay's *Lord Clive* (II, IV); Macaulay's *Life of Johnson* (II, IV); Milton's *Lycidas, Comus, L'Allegro*, and *Il Penseroso* (III, IV); Palgrave's *Golden Treasury* (First Series), Books II and III with special attention to Dryden, Collins, Gray, Cowper, and Burns (III, IV); Palgrave's *Golden Treasury* (First Series), Book IV with special attention to Wordsworth, Keats, and Shelley (III, IV); Poe's Poems (III, IV); Poe's Short Stories (II, III); Pope's *Rape of the Lock* (III); Pope's *Essay on Man*, and

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Essay on Criticism (III); Ruskin's *Sesame and Lilies* (II, III); Scott's *Ivanhoe, Lady of the Lake,* and *Quentin Durward* (II, III); Shakspere's *Julius Caesar* (II, III); Shakspere's *Hamlet, King Lear, Macbeth* (IV); Shakspere's *As You Like It, Henry V, Twelfth Night,* and *Midsummer Night's Dream* (III); Shakspere's *Merchant of Venice* (II, III); Spenser's *Faerie Queene* (selections) (III); Stevenson's *Treasure Island* (I, II); Thoreau's *Succession of Forest Trees* (I, II); Tennyson's *Gareth and Lynette, Lancelot and Elaine, The Passing of Arthur* (II, III); Thackeray's *Henry Esmond* (IV); Warner's *A-Hunting of the Deer* (I); Washington's *Farewell Address* (II, IV); Webster's *First Bunker Hill Oration* (II, IV).

Mathematics

ALGEBRA. 1 or 1½ units. The unit required of all students should include the following subjects: Addition, subtraction, multiplication, division, equations of the first degree with one unknown number, simultaneous equations of the first degree, factors, highest common factor, lowest common multiple, quadratic equations, simultaneous equations above the first degree, elementary theory of indices, and radicals.

An additional half year of algebra is strongly recommended, and is required of all engineering students. The work should cover the following subjects: Simultaneous quadratic equations; ratio, proportion and variation, including graphical representation of simple relations between two variables; binomial theorem for positive integral exponents; logarithms, including use of tables in simple numerical work.

GEOMETRY. I unit. Plane and solid geometry. This is a combined course of one year in plane and solid geometry and should consist of 180 propositions of which 45 must be in solid and spherical geometry; the combined course will not be accepted for entrance to the College of Engineering in 1912 and thereafter.

For admission to the College of Letters and Science the course may be confined to 180 or more propositions of plane geometry.

SOLID GEOMETRY. ½ unit. A half year of solid geometry following a year of plane geometry will be credited ½ unit for admission. Beginning with 1912 this half unit will be required of all students entering the College of Engineering. Previous

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to that date candidates for admission to the College of Engineering may present either the 45 propositions in solid geometry given in the combined course (see above) or a half year of solid geometry.

TRIGONOMETRY. ½ unit. A knowledge of the important properties of the trigonometric functions, the addition theorem, and the more important formulas which follow from it, and the solution of the various cases of right and oblique plane triangles. The student should become familiar with the use of logarithmic and trigonometric tables.

GEOMETRY AND MECHANICAL DRAWING. ½ unit. Students who have taken work in geometry in addition to the unit required of all and have had an approved course in mechanical drawing may receive ½ unit credit therefor.

An additional credit of ½ to 1 unit may be given to students who have had further work in algebra, trigonometry and surveying, or other mathematics, but the total credit shall not exceed 4 units.

History, Civics, and Economics

HISTORY. 1, 2, 3, or 4 units. History may be offered in the following "blocks":

Ancient History to the year 800 A. D., 1 unit.

Medieval and Modern History, 1 unit.

Medieval and English History, 1 unit.

English History, 1 unit.

United States History, 1 unit.

One, two, three, or four blocks may be presented. A real equivalent may be presented in place of a block recommended above, but one year's course in general history will not be accepted.

CIVICS. ½ or 1 unit. A knowledge of the relationships existing between subordinate and higher political units together with a description of the chief functions performed by the institutions of the various political units.

Civics may be combined with history or economics in the construction of an elective unit.

Commercial Law, ½ unit, may be offered under Civics.

ECONOMICS. ½ unit. A knowledge of the fundamental prin-

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ciples of economic science as presented in a good elementary treatise on the subject.

Commercial Geography, ½ unit, may be offered under Economics.

Science

BOTANY. 1 unit. The course in botany should cover a study of the life histories of types from the main groups of plants, and should include also a series of simple physiological experiments. At least two-thirds of the course should consist of laboratory work. For further details see the report of the committee of the Wisconsin State Teachers' Association for 1902 on a high school course in botany.

Where it is not possible to give a full year's work to the subject, botany may be combined with physical geography and physiology in the construction of units.

CHEMISTRY. 1 unit. A year's course of descriptive chemistry, consisting of both class-room and laboratory work. This course should include the more common metals and non-metals and their compounds. Two periods of laboratory work are considered as equivalent to one class exercise. A careful record of laboratory experiments should be kept, which must be submitted for examination by the committee on entrance examinations.

PHYSICS. 1 unit. A year's course in physics which must include both class-room work with a text-book and laboratory practice. The class-room work should be given not less than three periods a week, while the laboratory practice should require at least four actual hours of work a week in the laboratory, and a record of all work done should be kept in a carefully prepared note-book. Any one of the standard books, such as Carhart and Chute, Milliken and Gale, or Gage, may be used as a text.

PHYSICAL GEOGRAPHY. 1 unit. The physical geography should include: (1) The principles as presented in the best recent text-books, which give adequate treatment of the atmosphere and ocean and emphasize the development of topographic forms. (2) Field study. The nature of this must be controlled by the locality; but every candidate offering physical geography will be expected to submit a statement of the field trips required in his course. (3) The interpretation and habitual use of topographic maps, weather maps, charts, and pictures in the laboratory.

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Where it is not possible to give a full year's work to the subject, physical geography may be combined with botany and physiology in the construction of units.

PHYSIOLOGY. ½ unit. In this subject instruction must be given in anatomy, histology, and physiology of the human body, and the essentials of hygiene. The amount expected is indicated by that given in Martin's *The Human Body, Briefer Course.* The text-book work must be illustrated by charts and models, and anatomical demonstrations and chemical experiments should also be made.

ZOOLOGY. 1 unit. Instruction in this subject must include as much as four periods of laboratory work per week. The student must dissect at least eight to ten types of animals and make careful descriptions and drawings of this work. The types must be selected from the different branches of the animal kingdom. Knowledge of life histories and habits and relation of environment is also expected. The laboratory work must be accompanied with class exercises, so that the student may gain an intelligent appreciation of the meaning of his observations and of the bearing on zoological science of the facts observed by him. Lectures or text-book work on classification and general zoology must be a part of the course. The nature and scope of work expected may be indicated by the text-books of Needham, Cotton, Jordan, and Kellogg, or Linville and Kelly.

Language

GREEK. 2 units. Grammar; Lessons; Xenophon's *Anabasis*, four books; Homer's *Iliad*, three books, or an equivalent amount of the *Odyssey;* Greek composition.

LATIN. 4 units. Grammar and elementary book; *Caesar*, four books, or an equivalent amount of *Nepos*, *Caesar* (at least two books) and selection; *Cicero*, six orations (selections from the letters may be substituted for two orations); *Virgil*, six books; composition; preferably in connection with *Caesar* and *Cicero*.

These requirements are planned with special reference to the needs of those candidates who purpose to continue in the University the study of ancient and modern languages and of history.

LATIN. 2 units. Grammar and elementary book; *Caesar*, four books or an equivalent amount of *Nepos*, *Caesar* (at least two books) and selections; composition. Students who so present

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two units and others whose preparation in Latin is, for any reason, deficient may continue the study in the University with course A, which may be credited towards the bachelor's degree. No such credit, however, will be given for third and fourth year high school Latin.

GERMAN. 2, 3, or 4 units. German may be offered for entrance as a subject of two, three, or four units, requiring respectively two, three, or four years of high school study and approximately corresponding to the "elementary," "intermediate," and "advanced" courses outlined in the "Report of the Committee of Twelve." This report can be procured, at the price of sixteen cents, from D. C. Heath & Co., Boston. A detailed statement of the work of each unit may also be found in "The High School Course in German," No. 2 of the High School Series of the Bulletin of the University of Wisconsin.

A. Elementary German. 2 units. Applicants should be able to pronounce and to translate at sight (into good idiomatic English) simple German prose, help being given upon unusual words and constructions, to put easy English sentences into German, and to carry on a very simple conversation based upon the texts set for translation. The required amount of grammar is contained in the current "brief" grammars, or in the "first parts" of larger grammars like Joynes-Meissner or Thomas. Of the strong verbs only the more usual are required. Applicants should have read not less than 200 pages of easy German, chiefly modern narrative prose, but including some simple poems and one or two short plays.

B. Intermediate German. In addition to the work outlined under *A*, applicants should have read from 300 to 400 pages of moderately difficult prose and poetry, with constant practice, both oral and written, upon portions of the texts read. The work in grammar, accompanied by exercises in composition, should be continued.

C. Advanced German. Besides the work outlined under *A* and *B*, applicants should have read from 400 to 500 pages of standard literature in prose and poetry, with reference reading in the history of modern German literature. They should be able to translate at sight any ordinary modern German text that is free from unusual difficulties, to write a brief German essay

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on a simple topic relating to the texts read, and to follow a recitation conducted in German.

Students without preparation in German enter course 1. Those who have had two years of high school German will begin their work in the University with one of the courses 2, 2L, 2S, 2C, or 2E. Those who have had three years of German enter course 2A. Students who have studied German for four years in the high school regularly enter course 3A.

FRENCH. 2, 3, or 4 units. French may be offered for entrance as a subject of two, three, or four units, requiring respectively two, three, or four years of high school study, and approximately corresponding in difficulty to the "elementary," "intermediate," and "advanced" courses outlined in the "Report of the Committee of Twelve," pp. 75–83.

A. Elementary French. 2 units. The applicant should have a thorough knowledge of the grammatical forms of the language, and possess a sufficient vocabulary to read simple texts with ease.

Fraser and Squair's grammar is being used at present in the University, emphasis being placed upon oral and written drill outlined in the first 161 pages. Not less than 600 pages of simple French should have been read with careful attention paid to pronunciation during the entire period. A list of suitable texts will be found on page 76 of the "Report of the Committee of Twelve."

B. Intermediate French. In addition to course *A*, the applicant should have read at least 600 pages of French chosen from nineteenth century classics, and done work in oral and written composition equivalent to that given in Fraser and Squair's *Complete French Grammar.*

C. Advanced French. One year's high school work in addition to *Intermediate French.* The applicant should be able to write a short composition in French and show his understanding of a simple lecture in French by answering questions upon it in French. He should also be familiar with the outline of French history and literature.

SPANISH. 2 units. Spanish may be offered for entrance as a subject of two units, corresponding to the amount of work done in the elementary courses of the University. The student should have acquired a fair pronunciation, considerable facility in the translation of easier Spanish texts and a fairly accurate knowl-

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edge of grammatical principles and of regular and irregular verbs. The work in grammar should in scope be approximately the same as that contained in Parts I and II of Giese's *First Spanish Book and Reader*. About four hundred standard pages should have been translated, the following texts being regarded as especially suitable:—Ramsey's *Elementary Spanish Reader*, *Gil Blas*, *El Capitán Veneno*, Alarcón's *Novelas Cortas*, *El Pájaro Verde*, and at the end of the course, *Doña Perfecta* or *Josć*. The student should be taught the Castilian pronunciation.

MANUAL TRAINING

1 unit. In order to present manual training for entrance, the applicant must have taken an approved course in which not less than the equivalent of 240 hours has been devoted to wood work and 120 hours to drawing.

EXAMINATIONS AT THE UNIVERSITY

The regular examinations of the University are two in number, one in June and one in September. The earlier one is intended for those who wish to be examined while fresh from their preparatory studies, and for those who wish to test their qualifications at an early date in order that they may have time to make up deficiencies if necessary. The September examination immediately precedes the opening of the first semester.

For the current year the earlier examinations will be held on Thursday and Friday, June 17 and 18, beginning at 9 o'clock A. M. The later examinations will be held on Tuesday and Wednesday, September 28 and 29, beginning at 9 o'clock A. M. Students who are in any doubt as to their qualifications are urged to present themselves in June. All candidates are required to be present at 9 o'clock on the first day of the examinations.

Candidates for admission to the University may divide the subjects and take the examinations in two trials; but a failure to pass all of the subjects in the two trials will necessitate a complete re-examination.

The character of the entrance examinations is indicated by the extent of the preparation expected in each of the several branches, as described above, under the heading Scope of the Preparatory Work.

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ADMISSION UPON CERTIFICATE

ACCREDITED SCHOOLS.—Any high school or academy whose course of instruction covers the branches requisite for admission to the University may be admitted to its accredited list of preparatory schools after a satisfactory examination by a committee of the faculty. Application for such an examination may be made by an officer of the school to the Secretary of the Committee on Accredited Schools, on the basis of which a committee of the faculty will examine the course of study and the methods of instruction in the school, and on their favorable recommendation and the concurrence of the faculty it will be entered upon the accredited list of the University. No school will be placed upon the list whose course of study is not fully equal to the four-year course of high schools recommended by the State Superintendent. The graduates of such an approved school will be received by the University without examination, on the presentation of a certificate showing the satisfactory completion of the 14 required units, and containing the recommendation of the principal. Forms for such certificates, prepared by the University, must be used, and may be obtained from the Registrar. These certificates should be sent to the University before August 1st.

Any high school or academy with a complete four-year course whose course of instruction does not include foreign language may be admitted to the accredited list under the conditions stated above, provided that its course of instruction covers thirteen units in the subjects accepted for admission to the University. Graduates of such a high school or academy will be admitted upon certificate, under the conditions for admission without foreign language. (See Index under Admission.)

Principals of accredited schools are requested to note the statement regarding the examination of freshmen in English, as stated under the heading Scope of the Preparatory Work (see Index), and also the statement regarding the additional requirement and examination in algebra for admission to the College of Engineering, as stated under Requirements for Admission (see Index).

The University desires to keep itself fully informed regarding the work of its accredited schools by means of annual reports and frequent inspections. Every accredited school is required to

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report each year concerning its teachers, course of study, methods of instruction, and material equipment. Blank forms are furnished by the University for this purpose. The University sends out inspectors at its own expense and at the convenience of the members of the staff. Especial attention is called to the necessity of promptly notifying the Secretary of the Committee on Accredited Schools of changes in the dates of examinations and vacations. The list of accredited schools will be published near the end of the academic year; it will be sent to all accredited schools and to all high schools in the State of Wisconsin. Copies of the list may be had upon application to the Registrar.

GRADUATES OF NORMAL SCHOOLS

The certified standing of any student in the regular courses of the normal schools of this state will be accepted for entrance to the University in place of an examination in the subjects covered by the certificate.

The University offers a course designed especially for normal school graduates leading to the degree of Bachelor of Philosophy. This course includes advanced instruction in education and those studies in history, languages, and science, both required and elective, which will best fit the student for the successful conduct of his chosen profession. To this course graduates of the advanced courses of the Wisconsin normal schools will be admitted with the rank of junior on the presentation of a certificate of graduation and a certified statement of their normal school standings.

Graduates of the normal schools of the State who desire to become candidates for the degree of Bachelor of Arts will be given credits towards that degree as follows:—

a. All graduates of the advanced courses in a Wisconsin normal school shall receive a credit of 38 unit-hours, provided that, before entering the advanced course of the normal school they had the full equivalent of a four years standard high school course, as given in a high school on the accredited list of this University. But those graduates who enter without having absolved the University entrance requirements in foreign language before entering the advanced course of the normal school must

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meet this requirement before graduation from the University. This will ordinarily require extra work to the extent of four hours a week for one year, which may not be credited as part of the 120 unit-hours required for graduation.

b. A graduate who has had the preparatory work specified in *a*, and who, during his course at the normal school, has elected his studies with special reference to attending the University, may, on application, secure additional credits to an amount not exceeding a total of 45 hours.

c. A student who applies for such additional credit must present a full statement of his work at the normal school, which will be examined and rated by the Committee on Advanced Standing. The studies presented for a credit under this agreement must be fully equivalent to the corresponding courses in the University. Credit beyond 38 hours will ordinarily be granted only to students who present college work in foreign languages. Application for laboratory credit in science must be accompanied by laboratory or field books. No credit will be given for any work in the normal school done in a quarter when more than 20 hours per week were taken, except on special recommendation of the president of the school.

Graduates of the normal schools of other states are admitted to the University under the same general conditions as obtain for graduates of the Wisconsin normal schools, except that no credit will be given greater in amount than that granted by the state university of that state to the school in question.

STUDENTS FROM OTHER COLLEGES AND UNIVERSITIES

Students from other institutions, who have pursued standard college courses equivalent to those of the University, will be admitted, and will receive credit for such courses upon the presentation of proper certificates of creditable standing and honorable dismissal.

By arrangement with Beloit College, Lawrence College, Ripon College, Carroll College, and Marquette University, students of these institutions who have satisfactorily completed the work of the sophomore year will be admitted to junior rank in the College of Letters and Science. In case of migration at an earlier period than the end of the sophomore year, proportional credit will be given. Students who complete two years of work at

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Beloit, Lawrence, Ripon, Carroll and Marquette will be admitted to the College of Engineering of the University of Wisconsin on the same conditions as students who transfer to that college from the College of Letters and Science of the University of Wisconsin. Students of senior rank from Beloit, Lawrence and Ripon who enter the College of Law will receive credit for their law studies toward graduation in the institution from which they come, to amounts to be determined by those institutions.

Students of other colleges of good standing who have not taken standard courses, but who have studied at least one year in the college proper, may be admitted to the University provisionally. In such cases the amount of credit will be determined by the Committee on Advanced Standing. The University reserves the right to test by examination the records presented.

No person will be admitted to the University later than November 1st of the year in which he expects to graduate.

ADMISSION OF ADULT SPECIAL STUDENTS

Persons twenty-one years of age who do not possess all the requirements for admission, and are not candidates for a degree, but wish to take special studies in the College of Letters and Science and the College of Agriculture, are permitted to do so upon giving satisfactory evidence that they are prepared to take the desired studies advantageously. This privilege is granted in the College of Engineering only to such students as are able to meet all of the entrance requirements in mathematics. The privilege is not granted in the College of Law.

Adult special students who desire subsequently to become candidates for a degree must satisfy the regular entrance requirements.

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FEES AND EXPENSES

GENERAL REQUIREMENTS

All fees must be paid at the beginning of each semester. Until this has been done, cards entitling the student to admission to classes will not be issued.

Resident graduate students pay the same fees as resident undergraduate students of the College of Letters and Science, and non-resident graduate students pay a non-resident tuition fee of fifteen dollars per semester, whether they are in attendance at the University, or are studying *in absentia;* but all fellows and graduate scholars are exempt from the non-resident tuition fee, and honorary fellows and honorary scholars are exempt from both the non-resident and incidental fees. Graduate students *in absentia* pay the same fees as graduate students in attendance at the University, provided that after such students have paid fees to the amount they would naturally pay, if in attendance, for the degree for which they are candidates, no further fees will be required. Members of the instructional force who are candidates for higher degrees, pay the same fees as graduate students; but the total fees required are limited to the aggregate sum which is required of students giving their entire time during the period ordinarily required to obtain the degree sought.

All students of the University are required to pay a gymnasium fee of one dollar per semester, except short and dairy course students in agriculture, who pay seventy-five cents for the year.

Tuition is free for all students from the state of Wisconsin. The liability of students to pay tuition charges, as distinguished from incidental fees, shall be determined by the Registrar.

An additional fee of one dollar per semester must be paid by students who pay their fees after the prescribed registration days. (See Calendar.)

From students entering after one-half of a semester or term shall have elapsed, only one-half of the prescribed tuition and fees shall be collected.

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Upon the recommendation of the Commandant of the Department of Military Science, the Secretary of the Regents is authorized to remit fees to the extent of $10 per semester to company officers of the battalion having the rank of captain or above, and to award a prize of $50 at the end of each year of service of the field officers, colonel, lieutenant colonel, and adjutant.

TUITION AND FEES

College of Letters and Science

Resident tuition	FREE.
Non-resident tuition, per semester	$25 00
Incidental fee for all students, per semester	10 00
Gymnasium fee for all students, per semester	1 00
Additional fee for students, electing studies in the College of Law, per semester hour	3 00

College of Medicine

Resident tuition	FREE.
Non-resident tuition, per semester	$25 00
Incidental fee for all students, per semester	15 00
Gymnasium fee for all students, per semester	1 00

College of Engineering

Resident tuition	FREE.
Non-resident tuition, per semester	$25 00
Incidental fee for all students, per semester	15 00
Summer vacation work	7 00
Gymnasium fee for all students, per semester	1 00

College of Agriculture

Resident tuition	FREE.
Long Course, non-resident tuition, per semester	$25 00
Incidental fee for all long course students, per semester	10 00
Incidental fee for all short and dairy course students, per term	5 00
Tuition fee for non-resident short and dairy course students, per term	15 00
Lecture fee for non-resident short and dairy course students, per term	10 00
Gymnasium fee for long course students, per semester	1 00

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Gymnasium fee for short and dairy course students, per semester	75
Farmers' Course, resident tuition	FREE.
Farmers' Course, non-resident tuition	$5 00
Farmers' Course, non-resident incidental fee	5 00

College of Law

Resident tuition	FREE.
Non-resident tuition, per semester	$25 00
Incidental fee for all students, per semester	10 00
Gymnasium fee per semester	1 00

The fee for students in other colleges of the University who elect law studies is $3 per semester hour, provided such extra charge shall not exceed $25 per annum.

Summer Session

Graduate School	$15 00
College of Letters and Science (Six weeks)	15 00
College of Engineering (Six weeks)	15 00
College of Law (Ten weeks)	25 00

School of Music

Persons who are members of other colleges of the University may take the general courses in music without charge. Members of the School of Music and other departments, who take special lessons, will pay fees as stated in the announcement of the school on a subsequent page of this catalogue.

REGULATIONS FOR DOCTOR'S THESIS

Each candidate for the degree of Doctor of Philosophy must deposit in the University library one hundred printed copies of his thesis. If the thesis is printed in a journal or as a bulletin of the University, reprints therefrom will be accepted by the library, but these must be provided with a special cover in proper thesis form. The candidate may receive his diploma before the thesis is printed, provided a written or typewritten copy of the thesis is deposited with the Librarian, and the sum of $50 with the Secretary of the Regents. The money will be returned on presentation to the library of the required number of printed copies of the thesis within two years.

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LABORATORY FEES

BIOLOGICAL LABORATORIES.—The laboratory fee for the elementary course in biology and for the other five unit-hour courses is $8 per year, or $4 per semester. The fee for comparative anatomy is $5 a semester; for histology and embryology $10 a semester. The fees for human anatomy are: osteology, $2; dissection, $10 per pare dissected. There is also a breakage fee of $2.50 a semester. The laboratory fee for physiology is $7 per semester, with an additional breakage fee of $3; for physiological chemistry the fee is $15, of which $5 is returnable. The fee for bacteriology is $1.50 for each unit-hour of credit. The fee for pharmacology and toxicology is $10.00, of which $5.00 is returnable.

CHEMICAL LABORATORIES.—In these laboratories the deposit is from $15 to $25, depending upon the amount of work taken. The amount refunded will depend on the chemicals used and the care exercised by the student.

GEOLOGICAL LABORATORIES.—The laboratory fees in the courses in geology, physiography and mineralogy are from $1 to $6 per semester, depending upon the course elected.

PHYSICAL LABORATORIES.—The laboratory fee in the physical laboratories is $2 for each unit-hour (two hours per week of actual work) per semester.

PSYCHOLOGICAL LABORATORY.—The laboratory fee for the course in experimental psychology is $3; for other experimental work $3 per semester, or $5 per year.

COLLEGE OF MECHANICS AND ENGINEERING.—The charge for laboratory work is $2 per unit-hour (two hours per week of actual work) per semester. There is also a charge of $1 per year for periodicals, supplied to the engineering reading room.

COURSE IN PHARMACY.—See chemical and biological laboratories.

COLLEGE OF AGRICULTURE.—The charge for each unit-hour of laboratory work in the various departments is $1.00 per semester. A breakage deposit of $3.00, of which the unused balance is refunded at the end of the semester, must be made for each course in which laboratory work is done. The total fees for laboratory work during the first two years of the four year course are approximately as follows: Freshman year, first semester, less the refund $18, second semester, $12; sophomore year,

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first semester, $18, second semester, $5. The cost during the remainder of the course and for graduate work depends upon the nature of the work elected. Laboratory fees must be paid before the student can enter classes. Resident short course students pay a laboratory fee of $2, non-resident, $12. All students in the winter dairy course pay a laboratory fee of $10, and in the summer course, $5. Non-residents in the winter dairy course pay a laboratory fee of $20, and in the summer course, $15. All dairy course students pay a refundable key and breakage deposit of $2.

GYMNASIUM PRACTICE AND MILITARY DRILL

Young men of the College of Letters and Science, College of Mechanics and Engineering, and the four-year courses in agriculture and pharmacy, are required to take gymnastic exercises during the first two years of their course, and are also required to take military drill. Students required to drill must provide themselves with a uniform, of color and pattern required by the Regents, the cost of which is about $15.

Gymnasium fee, per semester.....$1 00
Locker fee, including laundry, per semester..... 1 25

Young women are required to take gymnastic exercises during the first two years of their course. They must also provide themselves with a uniform costume, directions for which will be found on a subsequent page under the head of Physical Training, women. (See Index.)

Gymnasium fee, per semester.....$1 00
Locker fee, including laundry, per semester..... 1 25

CHADBOURNE HALL

The price of rooms in Chadbourne Hall varies from $55 to $132 a year according to location. A circular giving detailed information may be obtained by addressing the Secretary of the Regents.

Applications for rooms in the Hall may be made at any time to the Bursar of the Regents, and must always be accompanied by a deposit of $10. The fifteen sophomores and ten juniors resident in Chadbourne Hall first applying for rooms in the Hall on or after January 1, will be accepted, and will be given their choice of rooms until February 1. With these exceptions, appli-

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cations will be received only from freshmen and sophomores until August 1, after which applications from juniors and seniors will be received up to the capacity of the Hall.

Rooms are assigned August 1 by the Mistress of the Hall in the order of application. The deposit of $10 required from all students when making application will be credited on the rent of the room for the second semester if taken; but if not taken, it will be forfeited, unless notification is received by the Mistress prior to August 15. The balance due for rent must be paid to the Bursar not later than the second week after the beginning of each semester.

If for any reason one of the occupants of a suite shall be obliged to give up her place in the suite, the remaining person may be required to take a single room if one is vacant, or pay the price of the full suite during the time it is occupied by her alone. All applicants are supposed to retain their rooms for the entire year, or forfeit the $10 deposit.

A person entering the Hall for the second semester only shall pay the price of the room charged for the second semester, with the additional sum of $10.

The rooms of Chadbourne Hall are provided with rugs and furnished, but occupants are expected to provide washstand furniture, towels, napkin rings, sheets, pillow cases, counterpanes and blankets. The present cost of board in Chadbourne Hall is $3.75 per week.

Chadbourne Hall has accommodations for one hundred women students. Applications will be received in excess of one hundred, and vacancies during the year will be filled in regular order from the waiting list. The Hall is lighted by electricity, and the heating apparatus is connected with the central heating plant, so that the danger from fire is minimized. Elevators operated by electricity connect the several floors.

The young women who occupy this building are under the immediate charge of the Mistress; they must board in the Hall, and are expected cheerfully to conform with requirements necessary for a family of students.

ROOMS AND BOARD

Rooms, furnished and unfurnished, can be obtained in the city at prices per week ranging from $2 to $5 a person. The cost

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of board in clubs is from $3 to $4 a week; in private families and boarding houses from $3.50 to $4.50 a week. Many students obtain rooms or board in families or clubs by rendering service; but these places are eagerly sought for, and cannot always be obtained at once. Those dependent upon themselves for support should not come to the University unless they have a reasonable fund.

DEGREES

FIRST DEGREES

The following baccalaureate degrees are conferred upon those who have successfully completed the prescribed courses of study, and who have complied with all other requirements of the University:—

Academic

BACHELOR OF ARTS, upon the graduates in the College of Letters and Science, except those from the course for normal school graduates, and from the course in Pharmacy.

BACHELOR OF PHILOSOPHY, upon the graduates from the course for normal school graduates.

Professional and Technical

BACHELOR OF LAWS.

BACHELOR OF SCIENCE, AGRICULTURAL COURSE.

BACHELOR OF SCIENCE, CIVIL ENGINEERING COURSE.

BACHELOR OF SCIENCE, MECHANICAL ENGINEERING COURSE.

BACHELOR OF SCIENCE, ELECTRICAL ENGINEERING COURSE.

BACHELOR OF SCIENCE, APPLIED ELECTROCHEMISTRY COURSE.

BACHELOR OF SCIENCE, PHARMACY COURSE, upon graduates from the four-year course in Pharmacy.

BACHELOR OF SCIENCE, MEDICAL SCIENCE COURSE.

GRADUATE IN PHARMACY, upon graduates from the two-year course in Pharmacy.

GRADUATE IN MUSIC, upon graduates from the four-year course in Music.

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A graduate of any of the courses may receive the baccalaureate degree of any other course by completing the additional studies required in that course. But two baccalaureate degrees cannot be taken in one year, and for a second bachelor's degree in the College of Letters and Science there are required one year's additional study and a special thesis.

The conditions on which the bachelor's degrees are given will be found stated under the appropriate colleges and courses on subsequent pages.

HIGHER DEGREES

The highest degree that the University confers in course is that of *Doctor of Philosophy*. The degree of *Master of Arts* is conferred as a second degree upon candidates who have received the degree of *Bachelor of Arts* or an equivalent, and the degree of *Master of Science* or *Master of Philosophy* upon candidates who have received the corresponding baccalaureate degrees. Candidates who have taken the degree of *Bachelor of Science* in one of the engineering courses may receive the degree of *Civil Engineer*, *Mechanical Engineer*, *Electrical Engineer* or *Chemical Engineer*. The degree of *Master of Pharmacy* is conferred as a second degree upon *Graduates in Pharmacy*.

The condition on which these higher degrees are granted will be found stated under the Graduate School, and also under the various colleges.

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THE COLLEGE OF LETTERS AND SCIENCE

EDWARD A. BIRGE, Dean, Professor of Zoology.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS

1. General Conditions

The unit-hour is the standard for computing the amount of work required for graduation. This is equal to one hour of recitation or lecture per week for one semester. Two hours of laboratory work or two hours regularly prescribed military drill or physical exercise in the gymnasium are credited as one unit-hour. Students are expected to take 15 hours per week in recitations, lectures, and laboratory work, making 30 unit-hours per year, and 120 for the course. In addition men are required to take two hours per week of gymnastics during the first two years, making a total of four unit-hours. They are also required to drill two hours per week during the first two years, giving a credit of four unit-hours. Women are required to take four hours of gymnastics per week during the first two years, giving a credit of eight unit-hours. The total requirements for class room work, military drill, and the gymnasium are, therefore, 128 unit-hours.

Students excused from drill or gymnastics are required either to make up the work before graduation, or if the excuse is based on permanent incapacity, to make good the requirement by work in other departments. Women excused from gymnastics are required either to make up the work before graduation, or if the excuse is based on permanent incapacity, to make up one year's work by a course in hygiene and a course in theory of physical training.

No student will be permitted to receive a credit toward graduation of more than eighteen unit-hours in one semester in regular studies except by permission of the Faculty, obtained in advance.

Students transferring from the Course in Commerce, or from another college of the University, can receive no more than fifteen unit-hours' credit per semester toward graduation for work already done, except in semesters where all standings are 85 or above.

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2. Required Studies

a. English, 6 unit-hours (3 hours per week for two semesters); to be taken in the first year of residence.*

b. Language: 16 unit-hours for those who offer four years or more of language at entrance; 24 unit-hours for those who offer less than four years of language at entrance. The work shall be in year courses in two languages. Ordinarily the two must be chosen from the following groups: Greek (classical), Latin, French, German; but advanced work in another foreign language, to an amount not exceeding eight units, may be substituted in part fulfillment of this requirement, on the following conditions:

(1) The student must study the language more than one year. (2) Only the work beyond the first year ("advanced work"), can be substituted. The first year's work will be accepted toward the required units for graduation, though not as part of the required units of language.

c. Two of the following: Natural Science, 10 unit-hours; Mathematics, 6 unit-hours; History, 6 unit-hours.

Under natural science are included biology, chemistry, physics, and geology. All are five-hour courses with laboratory work, or field work in geology.

3. Major Study and Thesis

Major Study.—At the beginning of the sophomore or the junior year, every candidate for the degree of Bachelor of Arts shall select as his major subject the work of some one department in the College of Letters and Science. This department will determine the manner in which the work of the major shall be completed; the work required in the major (including thesis and required work) shall not be less than 20 hours, nor more than 40 hours; the credit for the thesis being four hours.

Thesis.—All candidates for a baccalaureate degree are required to present a graduating thesis the subject of which must be approved by the student adviser and the professor at the head of the department in which the candidate is doing the work represented by the thesis. The thesis must represent some phase of

*On the completion of course 1 a provisional pass mark is given; if at any time later in his course a student is reported as deficient or careless in English composition he may be required to take additional work in that subject.

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the student's work in the major study, and must have the character of a scholarly dissertation on the subject. The thesis must be typewritten on paper of good quality, 8x10 inches in size, and must be bound according to specifications furnished by the Librarian of the University. It must be deposited in the University Library by June 10.

Before the thesis is accepted, it must be approved by the instructor under whom the work has been done, and by the head of the department. When accepted, the thesis becomes the property of the University.

4. Electives

All work not included in 2 and 3 is elective, but there shall not be taken in any one department more than 40 hours, including required work in excess of 6 hours, major, and electives. However, high school work for which university credit is given shall not count as a part of these 40 hours.

5. Studies of the Freshman Year

In this year one study only is absolutely required: English, course 1, three hours per week. All the other studies of the year must be chosen from the following groups:

GROUP I. At least one subject must be taken from this group and not more than 10 unit-hours may be chosen from any one subject.

Greek: 5 or 3 hours per week.
Latin: 5 or 3 hours per week.
German: 4 hours per week.
French: 4 hours per week.
Spanish: 4 hours per week (in the Course in Commerce).

GROUP II. At least one subject must be chosen from this group. Not more than 10 unit-hours can be taken in any one subject.

Mathematics:
Algebra: 3 hours, one semester.
Trigonometry: 3 hours, one semester.

These courses in Mathematics are repeated each semester.

Science:
Biology: 5 hours.
Chemistry: 5 hours.

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Physics: 5 hours.
Geology: 5 hours.
Astronomy: 3 hours, one semester.
History:
Ancient History: 2 hours.
English History: 3 hours.
Medieval History: 3 hours.

The student may take 14, 15, or 16 hours from these studies. The combination may be made by adding to English (3 hours) two foreign languages from Group I (6 to 10 hours), with one subject from Group II (3 to 5 hours); or by taking but one foreign language (3 to 5 hours) with two subjects from Group II (6 to 10 hours). Students are advised to carry on the language, or languages, which they have had in preparatory schools. Those who come with a language preparation consisting only of two years of German will be expected to continue that subject during the freshman year.

The following courses which are open to freshmen will be found described under Departments of Instruction on the following pages. The figures following the name of the department refer to the number of the course as given under the proper heading under Departments of Instruction.

English 1, Greek A, Greek 1, Latin A, Latin 1 and 2, French 1, 4, and 10, German 1, 2, 2A, Mathematics 1 and 2, History 1, 5, and 10, Biology 1, Chemistry 1, Physics 1, Geology 3, 4, Astronomy 1. The last named course cannot constitute a part of the required science.

ELECTION OF STUDIES IN OTHER COLLEGES

Candidates for the degree of Bachelor of Arts are allowed to elect in the College of Mechanics and Engineering, the College of Law, the College of Agriculture, the Course in Pharmacy, the Course in Commerce, the School of Music, the Course in Home Economics, or the State Library School, certain studies enumerated below to an amount not to exceed the equivalent of twenty unit-hours. This privilege will not be extended to normal graduates attempting to graduate in two years, nor to undergraduates of other colleges who enter this University with the rank of seniors.

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When approved by the Dean of the College of Engineering, an additional election of six hours is permitted in the case of students who propose to proceed to the degree of Bachelor of Science, Civil Engineering.

In the application of the twenty-hour rule, above set forth, candidates for the degree of Bachelor of Arts, with the exception of seniors taking law studies, are not allowed to elect more than five of the twenty hours in any one semester. Studies in the College of Law may be elected only by seniors.

Students who take the combined law and arts course in six years are not permitted to count toward their A. B. degree studies which are parallel to studies at present required in the College of Law. Such studies are the course in Commercial Law, in the Course in Commerce (course 9, in the Department of Political Economy), and course 13, Constitutional Law, in the Department of Political Science.

Students who have graduated from the College of Letters and Science will be admitted to second year standing in the College of Law, provided that while seniors in the College of Letters and Science they completed fourteen semester hours in the prescribed work of the first year of the College of Law, and in addition thereto have completed six semester hours of work in the College of Letters and Science from a group of studies to be designated by the faculty of the College of Law. The studies designated for 1909–10 are as follows: Political Science 2, (Elementary Law), Political Science 9, (Roman Law), Political Science 18, (American Constitutional Law), Political Science 18, (International Law), Political Science 27 (Comparative Legislation).

The following studies may be elected:

In the College of Engineering:

Mechanical Drawing, courses 1, 2, and 3.
Applied Mechanics, 1, 2, 3, 4, 5, and 6.
The Materials of Construction, 1, 2, and 3.
Topographic and Geodetic Engineering, 1, 2, 3, 4, 5, and 6; also 9 and 10.
Railway Engineering, 5.
Hydraulic Engineering, 1 and 2.
Structural and Sanitary Engineering, 1, 2, 3, 10, and 11.

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Hydraulic and Sanitary Engineering, 1, 2, and 4.
Steam Engineering, 3, 4, and 5.
Mechanical Laboratory, 1 and 2.
Machine Design, 1, 3, and 4.
Applied Electromagnetism and the Construction of Dynamos, 1 and 2.
Alternating Currents and Alternating-current Machinery, 1, 2, 3, 4, 5, and 6.
Applied Electrochemistry and Electrometallurgy, 1, 2, 3, and 5.
Electric Installations, 4 and 10.

In the College of Law:

Administrative Law, 1, 2, 3, 4.
Contracts.
Commercial Paper.
Real Property.
Torts.
Private Corporations.
Constitutional Law.
Wills.
Domestic Relations.
Common Law Pleading.
Equity.
Evidence.
Agency.
Public Service Companies.

The law courses in italics may be taken only after suitable preliminary studies. Applications for these advanced studies must be made to the committee in charge, consisting of the Dean of the College of Law and Professor Reinsch.

In the College of Agriculture:

Agricultural Chemistry, 1, 2, and 4.
Soils, 1 and 2.
Animal Husbandry, 24.
Veterinary Science, 25.
Horticulture, 6, 7, and 8.
Bacteriology, 20.
Agricultural Engineering, 2.

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In the Course in Commerce:

All courses except 8a and 8d in Business Administration, which can only be taken in addition to the required 120 units, by students of suitable preparation.

In the Course in Home Economics:

(Courses to be later announced.)

In the Course in Pharmacy:

All courses except Pharmacognosy under Botany and the courses in the Department of Pharmacy.

In the Course in Music:

Courses 2 to 15, inclusive.

The courses which may be elected in the State Library School include those on Reference, Loan, Classification, Library Economy, Public Documents, Subject Bibliography, Cataloguing, Book Selection, and such other courses as may be agreed upon by the Director of the Library School and the Dean of the College of Letters and Science, or some member of the faculty appointed by him. They may be elected only by qualified candidates in the junior and senior years, to the amount of ten hours in each year; standings in them shall be approved by the Committee on Advanced Standing.

REQUIREMENTS FOR A DEGREE IN THE COURSE IN COMMERCE

Students who have completed the regular four years' course of the Course in Commerce will receive the degree of *Bachelor of Arts*. (See Index.)

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

Students who have completed the regular four year's course of the Course in Pharmacy will receive the degree of *Bachelor of Science, Pharmacy Course.* (See Index.)

REQUIREMENTS FOR A DEGREE IN THE COURSE IN MEDICAL SCIENCE

Students who have fulfilled the necessary requirements will receive the degree of *Bachelor of Science, Medical Science Course.* (See Index, under College of Medicine.)

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The departments which constitute the College of Medicine are at present also constituent departments of the College of Letters and Science. The courses offered in these departments are open for election to any students in the College of Letters and Science who are prepared to take them. Candidates for the degree of *Bachelor of Arts* are not permitted to matriculate in the College of Medicine for more than one year. Candidates for the degree of *Bachelor of Science (Medical Science Course)* may be registered two years in the College of Medicine. They may, with the consent of their advisers, elect up to eighteen unit-hours of work per semester; and may confine their work to the science and language groups of studies. The language requirements are those required for admission to the College of Medicine (see Index).

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF PHILOSOPHY

Course for Normal School Graduates

Graduates of the advanced courses of the normal schools of the state are admitted to advanced standing in the College of Letters and Science on conditions given under the heading Admission (see Index). The following special course for normal school graduates has been arranged, leading in two years to the degree of *Bachelor of Philosophy*. The course contains a minimum required amount of advanced studies in Philosophy and Education, with opportunity for further elections in those subjects. It requires also a continuous study of foreign language during the two years of the course. In other directions the student may elect his studies. It is expected that the normal school graduate will give especial attention to fitting himself for teaching in one or two of the main lines of instruction, and the requirements and electives have been so arranged as to permit him to attain this end. He may devote himself especially to science, to literature, to history, or to any combination of these studies. He will be required, however, to make one of these lines of study his major work, and will not be permitted to elect a large number of short, scattered courses of instruction, since it is the especial design of this course to enlarge and complete his knowledge in certain definite directions.

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The attention of the student is called to the necessity of planning his course from the beginning so as to satisfy the requirements for a thesis.

Junior Year: Latin, French, or German 4; philosophy 3; advanced education 3; language history, English, advanced mathematics, or science 5; electives 3 to 5: 18 hours per week required.

Senior Year: Continuation of Latin, French, or German 4; electives 12; thesis 2: 18 hours per week required.

Any member of the course who offers work in foreign language equal in amount to that required of candidates for the degree of *Bachelor of Arts* will not be required to pursue courses in foreign language in the University; and no student in this course will be required to do more work in foreign language than is demanded for the degree of *Bachelor of Arts.*

Military drill and gymnastic exercises are not required of normal school graduates, no matter what course they may enter.

GRADUATION IN LESS THAN FOUR YEARS

The attention of students is called to the announcement of the Summer Session of the University, as given on subsequent pages of the catalogue. Work in the Summer Session will be credited in the same way as work in the regular session of the University, and by attendance at one session a total amount of credit may be acquired not exceeding six unit-hours.

Candidates for the degree of *Bachelor of Arts* who desire to graduate in three years may do so by taking 18 hours recitations per week and by attending three summer sessions. Permission to take work to this amount will be given only to students whose standing in their studies is wholly satisfactory. No credit will be given for repetition in the Summer Session of studies taken in the regular session of the University, or for repeating in the University work done in the summer. Students will need to select carefully their work for the summer with reference to the required and elective studies of the course in which they intend to graduate. The Summer Session offers exceptional opportunities for the preparation of a senior thesis. Any student who expects to shorten his course by means of the Summer Session should consult his class adviser in selecting his studies.

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STUDENT ADVISERS

Upon entrance, each student in the College of Letters and Science is assigned to a member of the faculty who acts as his advisr during the freshman and sophomore years. At the beginning of the junior year, at which time, if not before, the student selects his major study, a professor in the department in which his major is chosen becomes his adviser. Each semester, the student is required to consult his adviser concerning the choice of studies, and the adviser must give his approval before the student is permitted to enter classes.

THE UNIVERSITY TEACHERS CERTIFICATE

In accordance with the laws enacted by the legislature of 1907, section 458b-2, certificates are issued to all graduates of a regular collegiate course who complete the course in pedagogical instruction prescribed by the University of Wisconsin. This certificate, when presented to the State Superintendent, entitles the holder to receive a license to teach in any public school in Wisconsin for one year. Graduates who have received this certificate and present satisfactory evidence of good moral character and one year of successful teaching after graduation, are entitled to receive from the State Superintendent an unlimited state certificate.

For requirements for teachers certificate, see Index.

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DEPARTMENTS OF INSTRUCTION

PHILOSOPHY

PROFESSORS JASTROW, MCGILVARY, SHARP; ASSISTANT PROFESSORS BODE, DEARBORN; DR. STARCH, AND MR. OTTO.

The student is at liberty to begin his work in philosophy with any of the courses designated as primarily for undergraduates. But those who desire to take three hours' work through one year in the department, whether they wish to continue with the subject or not, will ordinarily find it most profitable to select course 1 or 31 in the first semester, and either 11, 21, 32, or 41 in the second semester.

The requirements for an undergraduate major in philosophy are a minimum of twenty semester hours including the thesis. Of these, at least eight hours must be taken from the courses for undergraduates and graduates.

Primarily for Undergraduates

1. Psychology: Introductory Course. *First semester.* Professors JASTROW and SHARP, Assistant Professor BODE, and Dr. STARCH.

   Section 1. *Tu., Th., at* 9, *and F., at an hour to be arranged.* Professor JASTROW and Dr. STARCH.

   Section 2. *M., W., at* 8, *and F., at an hour to be arranged.* Professor SHARP and Assistant Professor BODE.

11. Logic. *First semester; M., W., F., at* 10 *and* 11. Repeated in the *second semester; M., W., F., at* 8 *and* 10. Assistant Professor BODE.

21. Introduction to Philosophy. The relation of philosophy to the special sciences; the problems of philosophy and the various solutions that have been suggested; the tendencies of present-day thought. *Second semester; M., W., F., at* 9. Professor MCGILVARY.

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23. The Philosophic Thought of the Nineteenth Century as Reflected in English Literature. A study of Wordsworth, Carlyle, Emerson, Arnold, Tennyson, and Browning. *Second semester; Tu., Th., at* 10. Assistant Professor BODE.

24. The Philosophy of Religion. The conception of God in Christian theology and in modern philosophy; the nature of religion; the relation of religion to revelation, miracle, dogma, and morality. *Second semester; Tu., Th., at* 11. Assistant Professor BODE.

25. The Relation of Man to Nature. A study of man's place in nature, with special reference to the influence of the theory of evolution upon the conceptions of God, teleology, evil, personality and moral conduct. *First semester; Tu., Th., at* 11. Assistant Professor BODE.

31. History of Ancient and Medieval Philosophy. *First semester; M., W., F., at* 11. Professor MCGILVARY.

32. History of Modern Philosophy. A study of the development of philosophy from the Renaissance to the present day. The net results of this evolution will be summed up in an account of the philosophical thought and problems of the present. *Second semester; M., W., F., at* 11. Professor MCGILVARY.

41. Ethics: Introductory Course. *Second semester; M., W., F., at* 8. Professor SHARP.

42. Social and Political Ethics. A general study of moral rights, especially of the rights of personal liberty, freedom of contract, national independence, suffrage, and property. *First semester; Tu., Th., at* 12. Course 41 is not required as a preliminary. Professor SHARP.

51. Aesthetics. A general survey of aesthetical appreciation, with practical applications to art. An introductory course requiring no previous acquaintance with aesthetics. *First semester; Tu., Th., at* 10. Professor JASTROW.

For Undergraduates and Graduates

2. Advanced Analytic Psychology. *Second semester; Tu., Th., at* 9 (Subject to change). Professor SHARP.

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3. Experimental Psychology, Part I. (a) Lectures and demonstrations. *First semester; Tu., Th., at* 11; (b) Laboratory practice parallel with lectures. *About three hours weekly at hours to be arranged.* (a) and (b) together count as three unit-hours. While this course is continued as course 4, the lectures and practical exercises are so arranged that either part may be taken in advance of the other. Part I deals with sensation, perception, movement, reactions and the simpler functions of the mental life. It is the purpose of this, as of the following course, to familiarize the student wth the methods of testing, and with the analysis of mental processes, and to furnish him with practical facility in their application. Professor JASTROW and Dr. STARCH.

4. Experimental Psychology, Part II. (a) Lectures and demonstrations. *Second semester; Tu., Th., at* 11; (b) Laboratory practice with lectures. *About three hours weekly at hours to be arranged.* (a) and (b) together count as three unit-hours. While this course is the direct continuation of course 3, the lectures and practical exercises are so arranged that either part may be taken in advance of the other. Part II deals with memory, association, attention, imagination, reasoning, the emotions and the more complex manifestations of the mental life. For course 4, course 1 or its equivalent is required. Professor JASTROW and Dr. STARCH.

4a. Experimental Psychology for Premedical Students. This course is arranged to meet the special needs of students of medicine. It is open to others suitably prepared. It consists of two lectures weekly from the opening of the semester until the Christmas recess; and then of two afternoons of laboratory work until the close of the semester. The course surveys rapidly the chief phenomena underlying the mental aspects of bodily behavior and condition, and considers the abnormal variation thereof. *First semester; M., W., at* 10. Laboratory period; *Tu., Th.,* 2 *to* 5. Professor JASTROW and Dr. STARCH.

5. Research in Psychology. *Throughout the year; hours to be arranged.* Professor JASTROW.

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6. Comparative Psychology. Lectures and assigned readings on animal psychology and mental development in man. *Second semester; M., T., W., at* 3. (Omitted in 1909–10.) Professor JASTROW.

7. Abnormal Psychology. Lectures and assigned readings covering the main forms of unusual and abnormal mental phenomena. *Second semester; Tu., Th., at* 10. Professor JASTROW.

9. The Psychology of Language. A survey of the language-processes and their mode of action as illustrated by the study of language in its growth, in disease, among primitive peoples, in history, and as a logical product. *Second semester; M., W., at* 3. Professor JASTROW.

19. Psychological Principles and their Application. A survey of the principles applicable to such practical phases of influencing and appealing to conduct as are involved in the careers of the law, of business, of social reaction. *Second semester; Tu., Th., at* 8. Dr. STARCH.

36. The British Philosophers of the Eighteenth Century. Locke, Berkeley, and Hume. *First semester; M., W., F., at* 10. Mr. OTTO.

37. Kant. *The Critique of Pure Reason. Second semester; M., W., F., at* 10. Mr. OTTO.

44. History of Morality. An account of moral practice among so-called primitive peoples and among some historical peoples in ancient and medieval times. *First semester; M., W., F., at* 10. Professor MCGILVARY.

45. The Evolution of Morality. *First semester; twice a week.* Professor SHARP.

46. Contemporary Moralists. *Second semester; twice a week.* Professor SHARP.

Primarily for Graduates

10. Psychological Seminary. *Throughout the year; alternate weeks.* Professor JASTROW.

13. Advanced Logic. *Throughout the year; two hours a week.* Assistant Professor BODE.

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40. Metaphysical Seminary. *Throughout the year; Tu.*, 3:30 *to* 5:10. Professor McGILVARY.

47. Ethical Seminary. *Throughout the year; alternate weeks; W.*, 4 *to* 6. Professor SHARP.

EDUCATION

PROFESSORS ELLIOTT, O'SHEA; ASSISTANT PROFESSORS DEARBORN, TRESSLER; DR. STARCH; MISS ASHMUN, MR. BAILEY, AND MR. WEBER.

The chief aim of the work in this department is to treat education, in its history, foundations, and practice in the spirit of contemporary thought. To this end, groups of courses are offered in each of the following: (1) The historical evolution of educational ideals, institutions, and practices, as a basis for the intelligent interpretation of modern American education; (2) The more important educational movements of the present day; (3) The principles of mental development in the child and the race, with particular reference to educational aims and processes; (4) Educational psychology as a basis for the principles of teaching, and of educational methods and practice; (5) Principles of education viewed in the light of contemporary biological, sociological, and psychological thought; (6) The organization, administration, and methods of supervision of public education; (7) Seminary and research courses in each of the main divisions of education, the purpose of which is to investigate and discuss in a critical manner unsolved problems in the several fields covered; (8) The observation of teaching under expert supervision.

Certain of these courses are designed especially for those students who are specializing in other departments, and who can complete only elementary courses in education. These courses are commended to students who are interested in questions pertaining to human nature and society, even though they do not intend to follow teaching as a profession. The remaining courses are designed for advanced students, including those who are candidates for the degree of *Bachelor of Philosophy*. For those who desire to devote special attention to the study of education in preparation for positions in normal and training schools and col-

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leges, the Department of Education is now equipped to meet their needs in both a theoretical and a practical way.

The department is provided with professional and text-book libraries kept complete to date; it has for its use a well-equipped psychological laboratory for demonstrational and experimental purposes; it has begun the establishment of an educational museum; and the work of various courses is made concrete and definite by the use of lantern slides, charts, and other illustrative aids.

The Regents of the University have entered recently into an agreement with the Board of Education of the city of Madison, whereby students in the University pursuing courses in education, and preparing to teach, are enabled hereafter to observe, under the most favorable conditions, expert teaching in the elementary schools and the high school of Madison.

Major in Education

Undergraduate students selecting education as a major subject will be required to obtain credit in approved courses amounting to twenty-two hours, inclusive of credit for thesis.

Note: Students who are interested in the courses described below, but who cannot devote more than six or eight hours to the work are advised that it would be best to elect two courses for two hours each in the junior year, and complete the work in the senior year.

Primarily for Undergraduates

1a. History of Education. A study of the origins and evolution of the more significant of the present-day educational ideals, institutions and practices. Special attention during 1909–10 to the historical development of the aims, curricula, organization, etc., of secondary educational institutions. *Two or three hours credit:* the regular class work, including lectures, discussions, and text-book readings, counts for two hours; the parallel readings and special topics, for one additional hour. *First semester; M., W., F., at* 9. Professor ELLIOTT.

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1b. History of Education in the Nineteenth Century. A study of the development of educational standards and institutions during the past century, with special emphasis upon American education. *Two or three hours credit:* the regular class work, including lectures, discussions, and textbook readings, counts for two hours; the parallel readings and special topics, for one additional hour. *Second semester; M., W., F., at* 9. Professor ELLIOTT.

In the above courses the history of education is regarded from the point of view of its place in the *professional* education of teachers and of its primary purpose of affording to prospective teachers a basis for the interpretation and appreciation of the essential features of modern elementary and secondary education. While courses 1a and 1b represent a continuity in presentation, each semester's work is considered a unit in itself, and consequently, either course may be elected independently of the other.

For Undergraduates and Graduates

4a. Administration and Supervision of Education. A study of the forms of administrative and supervisory control of American public education. Special detailed presentation of the organization and problems of public education in cities. *Two or three hours credit:* the regular class work, including lectures, discussions and collateral readings, counts for two hours; the preparation of reports on special topics, for one additional hour. *First semester; Tu., Th., at* 9. Professor ELLIOTT.

4b. Administration and Supervision of Education. A study of the development, social significance, modes of organization and supervision of the more important types of supplementary agencies for public education. The problems arising from compulsory education and child labor laws; evening and vocational schools; schools for backward, defective and delinquent children; vacation schools and playgrounds; evening lecture systems and other forms of supplemental education for adults. Lectures, reports, and class discus-

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sions of selected topics. *Second semester; T., Th., at* 9. Professor ELLIOTT.

These two courses, 4a and 4b, have been designed particularly for those preparing for the duties of school superintendents and principals. While the two courses represent a continuity in presentation, each semester's work is a unit in itself, and consequently, either course may be elected independently of the other.

5. Comparative Educational Administration. A comparative study of the educational systems of Germany, France, and England, with special emphasis upon those features possessing significance for American education. Lectures, class discussions and special reports. *Two hours credit. Second semester; S.*, 9 *to* 11. Professor ELLIOTT.

11a. Mental Development. The work will cover (1) the general characteristics of development; (2) the theory of recapitulation in development; (3) motor development; (4) mental economy and hygiene in development. The work is made concrete so far as possible by the use of models, charts, etc., and by observation of the pupils in the high and elementary schools of Madison. The educational bearings of the principles discussed will be indicated. *Two or three hours credit:* the regular class work, including lectures, discussions, and text-book readings, counts for two hours; the parallel readings and special topics, for one additional hour. *First semester; M., W., F., at* 10. Professor O'SHEA.

11b. Mental Development. This course may be elected independently of course 11a. The work will cover (1) intellectual development; (2) emotional development; (3) adolescence. *Two or three hours credit:* the regular class work, including lectures, discussions and text-book readings, counts for two hours; the parallel readings and special topics, for one additional hour. Open to graduate students for three hours credit only. *Second semester; M., W., F., at* 10. Professor O'SHEA.

13a. Principles of Education. Treated with special reference to the high school. The first half of the course is devoted to a study of the foundations of educational theory viewed in

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the light of contemporary thought. The second half is devoted to a consideration of practical problems of the curriculum, and methods of teaching. A part of the work consists of observation of pupils in the high and elementary schools of Madison. *Two or three hours credit:* the regular class work, including lectures, discussions, and text-book readings, counts for two hours; the parallel readings and special topics for one additional hour. *First semester; M., W., F., at* 11. Professor O'SHEA.

13b. Principles of Education. This course may be elected independently of course 13a. It will be devoted to a study of (1) the characteristics and training of the period of youth; (2) the social nature of childhood and youth, and social education; (3) practical problems of school organization and management. The class work is supplemented by observation of pupils in the public schools of Madison. *Two or three hours credit*, as in course 13a. *Second semester; M., W., F., at* 11. Professor O'SHEA.

15. Contemporary Educational Movements. Contemporary movements at home and abroad affecting courses of study, the general character and method of teaching, and school organization and management. *First semester; M., W., at* 12. Professor O'SHEA and Professor ELLIOTT.

16. Educational Classics. With reference particularly to present problems respecting the nature and training of childhood and youth. Readings in Plato, Aristotle, Plutarch, Quintillian, Montaigne, Locke, Rousseau, Mill, and Spencer. *Two hours credit. Second semester; Th.*, 4 *to* 6. Professor O'SHEA.

32. Seminary in Administration and Supervision of Education. A research course for advanced students who desire to investigate some of the larger problems in the sphere of the administration and supervision of public education. Special subject, 1909–10; *first semester*, educational problems of rural communities; *second semester*, educational problems of urban communities. Students presenting theses in the administrative and supervisory phases of education are required to register for this course. *Throughout the year; alternate Thursdays*, 7:30 *to* 9:30. Professor ELLIOTT.

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33. Supervision of Instruction. This course has been arranged with a view to making a careful presentation of those aspects of public-school education involved in the distinctly professional work of superintendents and principals of schools. The evolution and interpretation of the public school curriculum. The principles, methods, and problems of the supervision of instruction. Special attention to those phases of supervision possessing importance for elementary and secondary schools of smaller cities. The work of this course will include, in addition to lectures, reports and class discussions of selected topics, systematic study of the actual conditions under which supervision must be carried on. For this purpose the public schools of the city of Madison will be used. *Second semester; Tu., Th., at* 10. Professor ELLIOTT.

41. Educational Psychology. (a) Lectures and demonstrations. *Tu., Th., at* 11. (b) Laboratory practice parallel with lectures. *One laboratory period of two hours a week at hours to be arranged.* Lectures on the psychology of the learning processes, and the application of the principles of psychology to teaching with a brief survey of the subjects of individual psychology and mental hygiene. The lectures or the laboratory course may be elected separately with the permission of the instructor. An introductory course in psychology is prerequisite for this course. *First semester; and repeated in the second semester. Two or three hours credit.* Assistant Professor DEARBORN and Dr. STARCH.

42. Research in Education. Students who wish to prepare theses on subjects dealing with educational psychology are expected to register for this course during the last semester of the junior year or the first semester of the senior year. *Throughout the year; hours to be arranged. Two or three credit.* Assistant Professor DEARBORN and Dr. STARCH.

43. Seminary in Educational Psychology. Assigned topics and reports on recent experimental studies and researches in educational psychology. *Throughout the year; on alternate Wednesdays,* 4 *to* 6. Assistant Professor DEARBORN.

44. Advanced Educational Psychology. One lecture or laboratory hour a week with assigned readings on selected top-

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ics. Subject for the first semester of 1909–10: The Psychology of Reading; for the second semester: Mental Deficiency. *May be elected for either semester; hours to be arranged. One hour credit.* Assistant Professor DEARBORN.

46. Experimental Education. A course of experiments in the laboratory and in the public schools designed to acquaint the student with experimental methods and the results of recent investigation of school problems. Open to all undergraduates, but given with primary reference to the needs of principals and superintendents and of those preparing for these positions. *First semester; hours to be arranged. Two hours credit.* Assistant Professor DEARBORN.

Primarily for Graduates

14. Genetic Psychology. The psychology of development in respect to some of the principal types of educational work. Designed only for advanced students in psychology and education. For the year 1909–10 the subject considered will be intellectual development. *Throughout the year; W., 7 to 9 P. M. Two hours credit each semester.* Professor O'SHEA.

20. Seminary in Education. The investigation and discussion of current educational problems. Each member is required to undertake a piece of research, and report upon it during the year. Open to those only who have done at least one year's work in education. *Throughout the year; alternate Thursdays, 7 to 9 P. M.* Professor O'SHEA.

University Teacher's Certificate

For the courses in education to be taken in fulfillment of the requirements for the University Teachers' Certificate, see Index under Teachers' Certificate.

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HISTORY

PROFESSORS DENNIS, FISH, MUNRO, TURNER; ASSOCIATE PROFESSOR SELLERY; ASSISTANT PROFESSORS CHASE, COFFIN, WESTERMANN; MR. HOCKETT, DR. LUNT, DR. ROOT; MR. DUNCALF, MR. HOLT, MR. MAURER, MR. SCHMITT, MR. SCOTT, MISS STANTON, MR. TABOR, MR. TRIMBLE, MR. WRENCH.

The courses in history are divided into three groups as follows:

A. Introductory courses 1 to 10 are primarily for undergraduates. They cannot be counted toward advanced degrees, and graduates are required to have completed an equivalent of sixteen semester hours of these studies as a preparation for graduate work for a degree. It is recommended that students shall not cover all of the introductory courses to the neglect of advanced work. If history is chosen as one of the required subjects (see Index under Degrees), six unit-hours must be taken in one or more complete courses. Students not registered in the College of Letters and Science can take the courses in Medieval, Modern, English, and United States history for two unit-hours credit each with a proportionate reduction in the amount of work required.

B. Advanced courses 11 to 49 are designed to continue the work begun in the preliminary courses in the direction of greater specialization. These courses are open to undergraduates and graduates who have taken the necessary preliminary work. Students who intend to teach history are referred to the statement of course 50.

C. Courses 51 to 66 are not open to undergraduates.

Instructors and graduate students in history meet once each month to discuss some historical topic of general interest, and for informal conference.

History Major

The requirements for an undergraduate major in history, in addition to the thesis, are twenty-six semester hours as a minimum, selected as follows:

I. One or more introductory courses in both European and American history.

II. Advanced courses to the amount of at least ten unit-hours

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For Undergraduates

COURSES OPEN TO FRESHMEN

10. Ancient History. A general survey of the history of the ancient world, including the oriental nations, Greece and Rome. Text-books, lectures, collateral reading and conferences. *Throughout the year; Tu., Th., at* 11. Assistant Professor WESTERMANN.

For Greek and Roman Life, see Latin 12.

1. Medieval History. A general survey of the history of Europe from the barbarian invasions to the close of the fifteenth century. Advanced students will be given special sections. Lectures, conferences, collateral reading, and topics. *Throughout the year; M., W., F., at* 11. Professor MUNRO, Associate Professor SELLERY, and assistants.

5. English History. An outline of political and constitutional history will serve as a frame work for the study of the economic and social development of the nation. In addition to the lectures and text-book, collateral reading and reports will be required. Students who have had both semesters of History 1 may enter this course at the beginning of the second semester. *Throughout the year; Tu., Th., at* 10, *and a third hour in sections for conferences.* Professor DENNIS, Dr. LUNT, and assistants.

COURSES NOT OPEN TO FRESHMEN

2. Modern European History. A general survey extending from the close of the fifteenth century to the present day. Lectures and collateral readings. *Throughout the year; M., W., F., at* 12. Associate Professor SELLERY.

6. English History. A general review extending to the end of the nineteenth century, useful for students of English literature, and for those who expect to teach history. Lectures, topics, and collateral readings. Students are not permitted to elect both courses 5 and 6. *Second semester; M., W., F., at* 8. (To be omitted after 1909). Dr. LUNT.

4. History of the United States. A general survey from the revolutionary era to the present, with emphasis upon political history. Lectures, text-book, collateral reading and

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topics. This course, or an equivalent, must precede all advanced courses in American history.

To the presidency of Jackson, *first semester;* from the presidency of Jackson to the present, *second semester; M., W., F., at* 11. MR. HOCKETT.

For Undergraduates and Graduates

ANCIENT AND MEDIEVAL HISTORY

25. Greek Civilization and its Expansion. A study of the development and character of Greek civilization, and of the forces making for its expansion, from the earliest times to the Early Roman Empire. *First semester; M., W., at* 12. Assistant Professor WESTERMANN.

26. Later Roman Empire. A study of the organization and government of the Empire in the third and fourth centuries, with special emphasis on the municipality and economic conditions. *Second semester; M., W., at* 12. Assistant Professor WESTERMANN.

29. Greek and Roman Institutions. (a) To the end of the Roman Republic; *first semester.* (b) Roman imperial and municipal institutions; *second semester. M., W., at* 12. (Omitted in 1908–09.) Assistant Professor WESTERMANN.

31. Medieval Civilization. Designed to supplement course 1 by a more special study of the intellectual life of the feudal period and of the organization of society. *First semester; Tu., Th., at* 10. Professor MUNRO.

32. The Crusades. Designed to supplement course 1 by a more extended study of the period from 1095 to 1291, with special reference to the causes, events and influence of the Crusades. *Second semester; Tu., Th., at* 10. Professor MUNRO.

41a. Constitutional History of England. A study of the growth of English institutions to the close of the Middle Ages. Open to juniors and seniors who have had course 5 or 6. *First semester; Tu., Th., at* 12. Dr. LUNT.

34. The Later Middle Ages. The political, social and religious life of western Europe in the fourteenth and fifteenth cen-

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turies, with emphasis upon the careers of such prominent men and women as Nogaret, Rienzi, St. Catherine, and Joan of Arc. *First semester; Tu., Th., at* 9. Associate Professor SELLERY.

35. The Renaissance in Italy. A consideration of the principal manifestations of Italian genius in the fourteenth, fifteenth and sixteenth centuries. The importance of the medieval background and the exaggerated influence commonly ascribed to revived antiquity. *Second semester; Tu., Th., at* 9. Associate Professor SELLERY.

46. Introductory Seminary in European History. The course is designed to give some familiarity with medieval conditions, with medieval Latin, and with the elements of historical method. The work consists in the translation and study of a medieval chronicle. In 1908–09 the subject was Otto of Freising. Open to graduate students and qualified seniors. *Throughout the year; Tu., 4 to* 6. Associate Professor SELLERY.

48a. Europe and Asia. A general survey of the historical relations of eastern and western peoples to about 1500, to serve as a basis for courses in contemporary world politics or for more detailed study of special phases of the relations of Asia to Europe. Graduate students can take this course in connection with course 66. Open to graduates and to undergraduates with sufficient preparation. *First semester; Tu., Th., at* 3. (Omitted in 1908–09.) Professor DENNIS.

MODERN HISTORY

41b. Constitutional History of England. A study of the growth of English institutions since the Middle Ages. A continuation of course 41a to the present. Open to juniors and seniors who have had course 5 or 6. *Second semester; Tu., Th., at* 12. Dr. LUNT.

49. Europe and America. A review of the European background of American history and of the mutual influence of European and American political and economic development. Among the topics treated are:—trade routes and geographical discovery, the rise of European national

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states and their rivalries, the development of English institutions, the motives for colonization and emigration at various periods, the mercantile system, and foreign aspects of the American Revolution. *First semester; Tu., Th., at* 11. Professor DENNIS.

42. England under the Tudors and Stuarts. A course dealing with constitutional and religious struggles in the sixteenth and seventeenth centuries, economic and social changes, international relations, the development of sea-power, and the founding of the British Empire. *Throughout the year; Tu., Th., at* 11. (Omitted in 1908–09.) Professor DENNIS.

43a. The British Empire, 1688–1815. A course dealing with the development of modern English institutions, foreign affairs, the international struggle for colonial and commercial supremacy, and the evolution of imperial politics. *First semester; Tu., Th., at* 10. (Omitted in 1908–09.) Professor DENNIS.

43b. The British Empire since 1815. A continuation of course 43a. Special attention will be paid to economic, colonial, and foreign affairs. *Second semester; Tu., Th., at* 11. Professor DENNIS.

44. The Development of Modern Russia, from the Muscovite leadership of the fifteenth century to the end of the nineteenth century. A study of institutions and of foreign relations. Course 2 or its equivalent is a prerequisite. *Second semester; Tu., Th., at* 12 *and S., at an hour to be arranged.* Assistant Professor COFFIN.

45. The Development of Prussian Leadership in Germany, 1640–1871. A study of the growth of modern Prussian institions and of the relations of Prussia with the other German states. Course 2 or its equivalent is a prerequisite. *Second semester; Tu., Th., at* 12 *and S., at an hour to be arranged.* (Omitted in 1908–09.) Assistant Professor COFFIN.

37. The Old Régime. An examination of the institutions of the eighteenth century and of the causes of the French Revolution. Course 2 or its equivalent is a prerequisite. *Second semester; Tu., Th., at* 10. Assistant Professor COFFIN.

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38. The French Revolution and the Napoleonic Empire, 1789–1815. A general study of the development of institutions and of international relations. Course 2 or its equivalent a prerequisite. Alternates with course 39. *Second semester; M., W., F., at* 10. Assistant Professor COFFIN.

39. The Nineteenth Century, 1815–1900. A general study of national development and of international relations particularly after 1850. Course 2 or its equivalent is a prerequisite. Alternates with course 38. *Second semester; M., W., F., at* 10. (Omitted in 1908–09.) Assistant Professor COFFIN.

48b. Europe and Asia. A continuation of course 48a, dealing in similar fashion with the relations of Europe and Asia since about 1500. *Second semester; Tu., Th., at* 3. (Omitted in 1908–09.) Professor DENNIS.

AMERICAN HISTORY

16. Social, Economic, and Institutional History of the American Colonies. Attention is given to the European conditions, to the motives and methods of colonization, and to the development of systems of industry, society, and government through the adaptation of European institutions to the American environment. *Throughout the year; M., W., F., at* 10. Dr. ROOT.

17. The American Revolution. In this course a general view of the British imperial system and of American conditions is followed by a treatment of the constitutional issue, the conflict of ideas and policies, and the process of political revolt and social upheaval. The course is concluded by a study of the problems and work of remodelling the commonwealth upon a statehood basis, and of establishing and operating the confederation. *Throughout the year; Tu., Th., at* 12. Dr. ROOT.

13. History of New England. A study of the transfer of population from Europe to the New England region, of the forces, social, economic, and political, that acted upon it there, and its expansion westward across the United States and Canada. Special stress will be laid upon the development and social conditions of the New England towns, the

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process of New England expansion, and the religious and intellectual development of the people. *Second semester; M., W., F., at* 10. (Omitted in 1908–09.) Professor FISH.

11a. The history of the West to 1840. Particular attention is paid to the conditions of westward migration and to the economic, political, and social aspects of the occupation of the various physiographic provinces of the United States, together with the results upon national development. Lectures, collateral reading, and topics. *First semester; M., W., F., at* 12. Professor TURNER.

11b. History of the West, 1840 to the present. See description of course 11a. *Second semester; M., W., F., at* 12. (Omitted in 1909–10.) Professor TURNER.

18. Civil War and Reconstruction. A general study of the history of the United States, 1860 to 1876. *Second semester; M., W., F., at* 12. (Omitted in 1908–09.) Professor FISH.

15. Diplomatic History of the United States. A study of the actual negotiations between the United States and other countries, and of the progress of international law so far as it has affected or been affected by the United States. *Throughout the year; Tu., Th., at* 10. MR. HOCKETT.

19. The Materials of American History. The purpose of this course is to introduce the student to the principal sources of American historical data. The value of newspaper files, government documents, and manuscripts will be discussed. *Second semester; W., F., at* 3. Dr. ROOT.

21. The Literature of American History. The purpose of this course is to show the progress of historical method, and of historical knowledge in America by a comparative study of the classics of American historiography. *First semester; W., at* 2. (Omitted in 1908–09.) Professor FISH.

20. Introductory Seminary in American History. Topics in the history of British imperial control of the American colonies, 1696–1760. It is the purpose of the course to study the relations between the mother country and her dependencies; treating both the organization and workings of the imperial system in England and the various colonial officials and their functions in America. *Throughout the year; Th., 2 to* 4. Dr. ROOT.

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50. The Teaching of History, with special reference to the work of the high school. Text-books, lectures, class discussion, and observation. Open to seniors whose major or minor is in history, and to others only by special permission of the instructor. Students whose majors lie in other fields may be recommended by the department as assistant teachers of history in a high school, provided they have successfully completed at least sixteen semester hours in history, of which at least four semester hours must be in advanced courses. *Second semester; M., W., at* 9. Assistant Professor CHASE.

For Graduates

51. Historical Bibliography. An account of the present state of materials for historical research and an examination of bibliographical tools essential to the special study of history. *First semester; W., at* 10. (Omitted in 1908-09.) Professor MUNRO.

52. Historical Criticism. An introductory survey of the principal problems of historical method. *Second semester; W., at* 10. (Omitted in 1908–09.) Professor MUNRO.

53. Palaeography and Diplomatics. (a) Elements of palaeography, with practical exercises in the reading of manuscript facsimiles, (b) elementary exercises in diplomatics. The first part of the course is arranged for the benefit of advanced students of language as well as for students of history. *Second semester; F.,* 9 *to* 11. (Omitted in 1909–10.) Professor MUNRO.

54. Modern Historians and their Methods. Lectures on English, French, German, Italian, and American historians of the latter part of the eighteenth and of the nineteenth century. The purpose is to discuss their writings and to illustrate the problems and methods of work in various fields of European history. *First semester; W., at* 10. Professor MUNRO.

56. Seminary in Medieval History. In 1908–09: the second crusade and the Latin Kingdom of Jerusalem. A knowledge of three foreign languages is required. *Th.,* 4 *to* 6. Professor MUNRO.

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57. Seminary in Modern European History. Topic for 1908–09: The centralization of French government by Napoleon I. *Second semester; S.*, 10 *to* 12. Assistant Professor COFFIN.

66. Oriental Seminary. This course is intended to supplement course 48, and to give opportunity to graduate students to investigate, by means of special research topics, various aspects of the relations of Europe and Asia. *First semester*, British India. *Second semester*, Modern diplomatic history as illustrated in the Eastern Question. *W.*, 2 *to* 4. Professor DENNIS.

58. Seminary in American History. In 1908–09, the Administration of Van Buren. For 1909–10 the work will be in Harrison's and Tyler's Administrations. *First semester; M.*, 2:30 *to* 4; *W.*, 4 *to* 6. Professor TURNER.

POLITICAL ECONOMY

PROFESSORS ADAMS, COMMONS, ELY, GILMAN, MEYER, ROSS, W. A. SCOTT; ASSOCIATE PROFESSOR TAYLOR; ASSISTANT PROFESSOR LORENZ; LECTURER HAWES; DR. HESS, DR. PRICE; MR. GRAY, MR. LEISERSON, AND MR. SECRIST.

The purpose of the department is to afford means for systematic and thorough study in economics and social science. The courses are graded and arranged so as to meet the wants of students in the various stages of their progress, beginning with elementary and proceeding to the most advanced work. They are also designed to meet the needs of different classes of students; as, for instance, those who intend to enter the public service, business, the professions of law, journalism, the ministry, charity work, or teaching, and those who wish to supplement their legal, theological, or other professional studies with courses in economics or social science. Capable students are encouraged to undertake original investigation and assistance is given them in the prosecution of such work through seminaries and the personal guidance of instructors. Special funds or equivalent arrangements have been secured for the investigation of the American labor movement, taxation in Wisconsin, railway transporta-

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tion and the manufacturing industries of Wisconsin. A means for the publication of the results of investigations of merit and importance is provided in the University Bulletin.

Among the special facilities which Madison affords to students in political economy mention should be made of the various libraries. The library of the University of Wisconsin is especially rich in economic works, while the Wisconsin Historical Library has valuable collections, helpful in research and investigation. The materials for the study of history described in connection with the work in the Department of History are especially helpful to students working in the field of political economy at a time when political economy is giving so much attention to historical investigation. The University Library has complete sets of the most important economic and statistical journals. In the field of labor history and labor legislation the library facilities are exceptional for research. The Historical Library is the custodian of the extensive collection of labor and employers' papers, convention proceedings, agreements, etc., secured through the American Bureau of Industrial Research. Transcripts of unique manuscript material are constantly being added to this collection. Mr. William English Walling of Chicago has presented important collections of books, papers, and pamphlets dealing with modern European socialism and social problems. Madison is also the headquarters of the American Association for Labor Legislation, the American branch of the International Association for Labor Legislation whose seat is Basle, Switzerland. Special attention is called to the Schlueter Collection of books, papers and manuscripts, recently acquired of Mr. Herman Schlueter of New York City. It is one of the richest collections in existence relating to the early history of socialistic movements in Germany and certain phases of similar movements in the United States and other countries. It contains documents that cannot be found even in the archives of the social democratic party in Germany; and is indispensable for any exhaustive scientific work in this field. In 1905, Mr. James J. Hill of St. Paul presented $5,000 to be expended for the development of the library on Transportation, and since then has made an additional gift.

The sons of the late Henry D. Lloyd have presented their

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father's collection of papers and manuscripts which were gathered together by him in various parts of the world while engaged in his investigations and the preparation of his books.

The studies offered by the department are elective in all the courses of the University. The graduate work of the department may lead to the master's degree in not less than one year, and to the doctor's degree in not less than three years.

The work of this department has the following distinct but related aims:

1. To provide instruction in economics and sociology for undergraduates in all the courses of the University.
2. To provide advanced and graduate work in the studies falling within its field.
3. To assist and encourage the development of these studies.
4. With the co-operation of other departments to provide special training courses for various practical pursuits.
5. To supplement the work of the College of Law.

Attention is here called to the fact that graduates who are pursuing the law course may prepare to take their master's degree at the same time with the degree in law by completing the equivalent of two full studies during one year's work. Graduates of the College of Law are encouraged to devote an additional year to broadening out their training in economics, politics, and jurisprudence.

Especial attention is called to the large number of related courses in philosophy and ethics, and also to the considerable number of journalistic courses.

POLITICAL ECONOMY AS AN UNDERGRADUATE MAJOR.—The requirements for an undergraduate major, in addition to the thesis, are twenty-one unit-hours as a minimum, selected in part from the advanced courses.

POLITICAL ECONOMY AS A GRADUATE MAJOR.—Candidates for the degree of Doctor of Philosophy in this department are required to present in their principal subject the equivalent of at least two full graduate courses during two years; in their first subordinate the equivalent of at least one such course during two years; and in their second subordinate the equivalent of at least one such course during one year.

All such candidates will be expected to be familiar with the history of economic thought, the elements of statistics, and the

principles of political economy as presented in advanced modern treatises.

Each candidate must have also made an intensive study of at least one of the following special fields: economic theory and institutions; economic history; sociology; labor; public finance; money, banking, and private finance; transportation. In the special field or fields selected, the candidate will be expected to exhibit not only thorough knowledge of the literature, methods of study, the social bearings of the subjects included, but also ability to prosecute research.

Candidates for the master's degree must present in their principal subject the equivalent of at least two full graduate courses during one year, and in their subordinate subject the equivalent of at least one such course.

POLITICAL ECONOMY AS A GRADUATE MINOR.—For a minor, candidates whose major falls in another department may present either the general subjects required of all candidates with a major in economics, or any one of the special groups mentioned above. Candidates for the degree of Doctor of Philosophy may select their major and one of their minors in this department.

Primarily for Undergraduates

1. The Elements of Economics. A general survey based upon the study and discussion of Ely's *Outlines of Economics*, supplemented by lectures, assigned reading, and exercises. Required of sophomores in the Course in Commerce and of all students beginning the subject of economics. *Repeated each semester; M., W., F., at* 8, 9, 10, *and* 11; *and Tu., Th., S., at* 9. Professor ADAMS, Associate Profes or TAYLOR, Dr. HESS, Dr. PRICE and Mr. GRAY.
2. Elementary Sociology. Lectures with lantern slides. This course is copiously illustrated in order to give a graphic idea of the variety of social forms, and to show the actual evolution in each of the great departments of social life. For those who wish a general view of the subject as well as for those who expect to take the more advanced courses in sociology. *Attendance only. One unit-hour. First semester; M., W.. F., at* 10. Professor ROSS.
3. Elements of Public Finance. An introductory study of the

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general principles of public expenditure, public revenue, public indebtedness, and financial administration. *First semester; M., W., F., at* 9. Professor ADAMS.

5. The Elements of Money and Banking. An introductory course, based on Scott's *Money and Banking*. Repeated each semester. In the first semester the course will be adapted to the needs of those who do not expect to continue the subject in advanced courses. In the second semester the needs of those who expect to specialize in banking and finance will be chiefly consulted. *M., W., F., at* 9. Professor SCOTT and Dr. HESS.

6. Introduction to Anthropology. This course deals with general questions which precede the study of race, physical characteristics and culture. Scope, methods and uses of Anthropology; material and authorities. Man's place among the animals; evolution; monogenesis vs. polygenesis; antiquity of man; anthropometry; how measurements are made and why; the principal indices and their value. Persistence of physical features. *First semester; M., W., F., at* 11. Mr. HAWES.

7a. Economic Geography. A general survey of the history and present status of industry and commerce in the principal countries of the world excepting the United States. *Second semester; M., W., F., at* 10 *and* 11. Associate Professor TAYLOR.

7b. Economic Geography of the United States. After a brief survey of the development of industry and the expansion of commerce, a special study is made of the production and distribution of the principal articles which enter into American commerce. *First semester; M., W., F., at* 8. Associate Professor TAYLOR.

8a. The Elements of Accounting. Business forms, methods and documents. Columnar journalizing, double-entry drills, principles involved in modern forms of accounting and practice in the use of essential books, and in treating and properly stating partnership accounts. The work is designed to be a foundation for the entire course in accounting. The greatest exactness and precision is required, particularly in connection with the laboratory drills.

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Text-books, lectures, and laboratory practice. *Throughout the year.* Professor GILMAN, Mr. ATWELL, and assistants.

8b. The Theory and Practice of Accounting. Corporation accounts, analysis of classified statements of losses and gains, revenue, manufacturing, and trading accounts and balance sheets from trial balances. Practical problems in accounting procedure. This course is built upon 8a, which must precede it, and is designed to furnish the training in accounting required by the well-equipped business man. Text-books, lectures and laboratory practice. *Throughout the year.* First semester's work may be taken without the second. Professor GILMAN and assistants.

8c. Advanced Accounting and Auditing. Certified Public Accountants' Reports in complicated matters; executor's, referee's and trustee's accounts; installation of accounting systems. Analysis of complex financial statements, revenue accounts, and balance sheets of corporations; analysis of corporation statements of production and distribution; realization and liquidation accounts; statements of deficiency accounts. This course is designed to prepare special students for employment as public accountants. Lectures, analysis of accounting systems and laboratory practice. Must be preceded by 8a and 8b. *Throughout the year.* Professor GILMAN.

8d. Business Organization and Management. A practical study of the typical industries and occupations and of the fundamental principles and methods of modern business procedure involved in their organization and management by individuals, firms and corporations; corporation organization and capitalization; executive and financial organizations; credits and collections, complete systems of handling data to secure the greatest efficiency. Analysis of reports, factory operations, cost of production, time and payroll records, machinery and tool room records. Appraisals, perpetual inventories. Development in advertising, purchasing, sales promotion, main office relations to branch office, systematizing, office appliance systems. Course open to seniors only. *Throughout the year; Tu., Th., at* 9. Professor GILMAN.

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9. Commercial Law. The law of contracts, commercial paper, agency, partnership, corporations, sales, public service companies, real estate, probate, and insurance treated with reference to the legal rights and liabilities arising in the conduct of business. *Throughout the year; M., W., F., at* 2. Professor GILMAN.

18. Senior Seminaries for Thesis Students. Professors ADAMS, COMMONS, GILMAN, SCOTT; Associate Professor TAYLOR; Dr. HESS, Dr. PRICE.

For Undergraduates and Graduates

19. Races of the five continents with special emphasis on the native races of America. Early migrations of peoples: their distribution today. Interesting survivals of ancient stocks. Special ethnic problems. The question of the origin of the American Indians. Their main divisions, geographical areas and different cultures. *Second semester; M., W., F., at* 11. Mr. HAWES.

20. Industrial Evolution and Its Problems. A general survey of industrial development followed by an examination of special problems, such as custom and competition, monopolies and trusts, concentration of wealth, municipal ownership, the inheritance of property, etc. *First semester; Tu., Th., at* 11. Professor ELY and Dr. PRICE.

21. History of Economic Thought. The principal topics will be the following: The history of economic thought in classical antiquity; its subsequent development to the time of the mercantilists; the rise and growth of economics as a distinct branch of social science with a brief discussion of existing schools of economic thought. (Omitted in 1909–10.) *First semester; Tu., Th., at* 10. Professor ELY and Dr. PRICE.

22. Modern Socialism. A study of the socialist movement during the nineteenth century, and an examination of the theories of those writers who are usually called socialists. *First semester; Tu., Th., at* 9. (Omitted in 1909–10.) Assistant Professor LORENZ.

23. Labor Problems. The characteristic features of American industry, immigration, strikes, trade unions, employers' as-

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sociations, arbitration, industrial efficiency, restrictions on output, etc. *First semester; M., W., F., at* 9. Professor COMMONS.

23a. Labor Legislation. The labor laws and decisions of the United States and foreign countries, the practical working of important statutes, studies of the reports of the International Association for Labor Legislation. *Second semester; M., W., F., at* 8. Professor COMMONS.

24. Problems in Taxation. Comprehends the more concrete problems of the day: mortgage, railroad, insurance, and double taxation, the personal property and inheritance taxes, etc. *Second semester; Tu., Th., at* 9. (Omitted in 1909–10.) Professor ADAMS.

25. Exploitation of Natural Resources. A critical study of some of the special problems of conservation and reclamation in the United States. The economic aspects of federal and state policies pertaining to public lands, forests, irrigation, drainage and waterways, the relation of property rights to conservation. (This course is designed to follow and supplement the course on our natural resources, offered during the first semester by President VAN HISE.) *Second semester; Tu., Th., at* 9. Dr. HESS.

26. Agricultural Economics. This course consists of a study of the economic principles which underlie farm management, estate management, and agrarian legislation. Open to students who have had course 1. *Second semester; two hours per week.* Associate Professor TAYLOR.

27. Historical and Comparative Agriculture. This course consists of a sketch of the development of agriculture in England and America, followed by a special study of the recent history and the present status of agriculture in the United States, with an attempt to find the explanation of historical changes and geographical differences in methods of farm and estate management. Open to students who have had course 26. *First semester; two hours per week.* Associate Professor TALYOR.

28. Research Course in Agricultural Economics. In 1909–10 this course 26. *First semester; two hours per week.* Associate in the United States. Open to students who have had

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courses 26 and 27. *Second semester; two hours per week.* Associate Professor TAYLOR.

29. Manufacturing Industries. State of manufactures in England in 1750. The rise of the factory system and its industrial and social consequences. The textiles and the iron and steel industries. The industrial development of Germany and the United States. Tariff policies of the nineteenth century. *First semester; three hours per week.* (To be announced.) Dr. PRICE.

30. Elements of Statistics. A course in statistical method. Prerequisite to course 31. One lecture, one quiz, and four hours laboratory work a week for which a credit of three unit-hours is given. *First semester; Tu., Th., at* 12. *Laboratory hours to be arranged.* Professor ADAMS.

31. Economic Statistics. Prices, wages, family budgets, labor, financial statistics, etc., will be studied. One lecture, one quiz and four hours laboratory work a week, for which a credit of three unit-hours is given. This course is especially recommended to juniors intending to take thesis work in economics. *Second semester; Tu., Th., at* 12. *Laboratory hours to be arranged.* Professor ADAMS.

32. Social Statistics. Includes a study of vital statistics, suicide, crime, pauperism, etc. One lecture, one quiz and four hours laboratory work a week, for which a credit of three unit-hours is given. May be taken without course 30. *Second semester; Tu., Th., at* 12. (Omitted in 1909–10.) Profesor ADAMS.

33. Financial History of the United States. The main lines of our financial development, including our monetary and banking history, will be traced by means of lectures, of which two will be given each week. Readings in the literature of the subject and topics for investigation will be assigned. A third hour each week will be devoted to quizzes on the lectures and assigned readings. *Second semester; M., W., F., at* 8. Professor SCOTT.

34. The Money Market. Lectures on the machinery, methods, and movements of the American and English money markets, accompanied by exercises in the interpretation of the

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weekly statements of the Associated Banks of New York and the Bank of England, the English bank and market rates, the published rates on loans in the New York market, and the rates of foreign exchange. *First semester; M., W., F., at* 12. Professor SCOTT.

35. Transportation and Communication. A general introductory course dealing with the more important principles and facts relating to railways, waterways, and the express, telephone, telegraph, and postoffice services. *Second semester; M., W., F., at* 8. Professor MEYER and Dr. HESS.

36. Special Problems in Transportation. An advanced course in which the more important special transportation problems are discussed in detail. Lectures and reports. *First semester; Tu., Th., at* 9. Dr. HESS.

37a. Corporation Economics. Influence of an enlarging scale of production upon business organization; forms of organization antecedent to the joint stock company; historical development of the business corporation; history of joint stock companies in England and the United States under common law, charters, and registration acts; the economies and wastes of large scale production and of monopolies; pools, trusts, and consolidations; legislation and supervision. *Second semester; M., W., F., at* 9. Dr. PRICE.

37b. Corporation Finance. A study of the finances and securities of railroad and industrial corporations. (Open only to those who have taken Course 37a.) (Omitted in 1909–10.) Dr. PRICE.

37c. Speculation and Investment. A study of stock and produce exchanges, and investment institutions. (Open only to those who have taken Course 37a.) *First semester; M., W., F., at* 10. Dr. PRICE.

38. Insurance Economics. Principles and methods of insurance; rise, progress, and problems of associations for indemnity. Special attention will be given to the various forms of life insurance, including an elementary survey of life insurance mathematics. *Second semester; M., W., F., at* 10. Dr. PRICE.

39. Social Psychology. Genesis, form, and phases of the social mind and its reaction upon the individual mind. The laws

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of mob-mind, "craze," fashion, conventionality, custom, "spirit of the age," public opinion, etc. Studies of nonconformity, individuality, leadership, innovation, the role of great men. The endeavor is to reach key principles for interpreting contemporary society. *First semester; M., W., F., at* 11. Professor Ross.

40. General Sociology. A systematic survey of the social processes with the view of establishing principles and laws. The inductive method is followed, and it is hoped the orderly presentation of a large amount of classified data will aid the student to build his own sociology. *Second semester; M., W., F., at* 11. (Omitted in 1909–10.) Professor Ross.

41. Charities and Corrections. A study, first, of the dependent class, with special reference to slum conditions; second, of the defective class, and the institutional treatment of this class; third, of the delinquent class, causes and prevention of crime, prison management and discipline. Reformatories and other public institutions will be visited. *Second semester; M., W., F., at* 10. (Omitted in 1909–10.) Professor Ross.

42. Public Utilities. A comparison of public regulation and public and private ownership of municipal utilities in American states and foreign countries, including constitutional and judicial limitations, delegation of legislative power to commissions, physical valuation, reasonable rates and services, organization of public employees, cost, efficiency, social and political results. *First semester; lectures, M., W., F., at* 8. Professor Commons and Mr. Dudgeon.

42a. Public Utilities, Research. *Second semester; hours to be arranged.* Professor Meyer.

44. Socialism. Examination of the underlying causes of the socialist movement of modern times, particularly as these causes are found in the Industrial Revolution of the 18th and 19th centuries, together with a brief historical survey of the various schools of socialist thought. The aim of this course is a critical but impartial study of socialism as a philosophy of industrial evolution and as a program of economic reform. *Summer Session.* Professor Ely.

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45a. American Labor History to 1860. The origins and development of the labor movement and its part in American economic, political, and legal history. Lectures, collateral reading and topics. *Second semester; M., W., F., at* 9. Professor COMMONS.

45b. American Labor History since 1860. See description of course 45a. *Second semester; M., W., F., at* 9. (Omitted in 1909–10.) Professor COMMONS.

46. Advanced Economics. An advanced course in general economics intended primarily for students who have had course 1 and intend to major in political economy. *Second semester; Tu., Th., at* 10. (Omitted in 1909–10.) Professor ADAMS.

47. Early Development of Man in Northern and Central Europe. First traces of man; how dated? Evidence of geology and palaeontology. River-drift and cave man. Art of "ivory" and "horn" periods. Relations of palaeolithic and neolithic races and culture. Immigrations from south and east; introduction of cereals and domestic animals, agriculture, and crafts. Transition to metal. Prehistoric monuments; kitchen-middens, artificial caverns, lake-villages, terremare and crannogs, megaliths. Halstatt and La Tène cultures. *First semester; Tu., Th., at* 10. Mr. HAWES.

48. Early Development of Man in Southern Europe. The Mediterranean basin and its earliest inhabitants. Bronze Age civilization of the Aegean Islands; progress of arts; religion and writing; foreign intercourse. Parallel development on the mainland; Minoans, Mycenaeans, and Etruscans. Evidence of excavations; pottery as a guide to chronology. Invasion from the north. Early trade routes. Changes coincident with the introduction of iron. The Aryan problem. *Second semester; Tu., Th., at* 10. Mr. HAWES.

Primarily for Graduates

50. Seminary in Finance. For graduate students who desire training in the investigation of financial topics. *First semester; Th.,* 4 *to* 5:30. Professor SCOTT.

51a. The Classical Economists. The evolution and characteristics of the classical political economy of England. Especial

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attention will be given to the economic, social and philosophical environment in which this system of thought grew up, and to the specific forms it assumed in the writings of the Physiocrats, Adam Smith, David Ricardo, and John Stuart Mill. Lectures and round-table discussions. *Second semester; Tu., Th., at* 11. (Omitted in 1909–10.) Professor SCOTT.

51b. Political Economy since John Stuart Mill. The reaction against the classical political economy of England and the chief lines of development since John Stuart Mill. Especial attention will be devoted to the modification of the fundamental doctrines of the classical economists and to the evolution of new lines of thought and investigation. Lectures and round-table discussions. *Second semester; Tu., Th., at* 11. Given alternate years with course 51a. Professor SCOTT.

52. The Distribution of Wealth. Part I. This course in an introduction to the economic philosophy of distribution. Special attention will be paid to the relations of property, public and private, to distribution. *First semester; M., W., F., at* 10. Professor ELY.

53. Distribution of Wealth. Part II. The shares of the various factors in distribution, viz.: rent, interest, profits, and wages. Custom and competition in their relation to the above factors will receive chief attention in 1910–11. May be taken by those who have not had Part I, course 52. *First semester; M., W., F., at* 10. (Omitted in 1909–10.) Professor ELY.

54. Public Finance. This course deals first with the nature of public finance as a science and with its history, with the development and working of the public economy, and then proceeds to a discussion of public expenditures and revenues. Given in connection with course 57 and open only to students who have had an introductory course in Public Finance. *First semester; Tu., Th., at* 11. (Omitted in 1909–10.) Professor ELY.

55. American Public Finance. Part I. The financial history of the United States. A critical and historical discussion of the finances of the federal government. *Second semester;*

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Tu., Th., 2:30 *to* 4:00. (Omitted in 1909–10.) Professor ADAMS.

56. American Public Finance. Part II. An historical and critical account of the finances of the American commonwealths and local political units. *Second semester; Tu., Th.*, 2:30 *to* 4:00. (Omitted in 1909–10.) Professor ADAMS.

57. Principles of Taxation. A discussion of the history, principles, and problems of American taxation. Open only to students who have had previous training in Public Finance. *Second semester; M., W., at* 9. Professor ADAMS.

60. Seminary on Cities. Growth, location, structure, and economic basis. Comparison of city with country in respect to sex, age, race, birth rate, longevity, marriage, divorce, criminality, vice, education, moral character, intellectual traits and political leanings. *First semester; W.*, 7:15 *to* 9:15. Professor Ross.

61. Seminary on the Psychology of the American People. Comparison with other peoples and of one American community or section with others in respect to pauperism, vice, criminality, migrancy, industriousness, forcefulness, sociability, emotionalism, stability, conservatism, etc. Causal importance of race, social history, physical environment, economic and cultural factors. *Second semester; W.*, 7:15 *to* 9:15. (Omitted in 1909–10.) Professor Ross.

62. Seminary in Special Criminology. A study of the nature, extent, varieties, and effects of contemporary wrong-doing, especially in politics and business, and an inquiry as to how far the phenomena may be explained by changes in American life and society. *Second semester; W.*, 7:15 *to* 9:15. (Omitted in 1909–10.) Professor Ross.

63. Seminary on the Dynamics of Population. The factors—economic, military, social, political, legal, and religious—which influence the quantity and quality of population. Natural, social, and artificial selection among men. Outlines of eugenics. *First semester; W.*, 7:15 *to* 9:15. (Omitted in 1909–10.) Professor Ross.

64. Seminary in Taxation. *Throughout the year; every other week; W.*, 7:30 *to* 9:30. Professor ADAMS.

65. Research Course in Labor and Industry since 1880. *Throughout the year; Th.*, 7:30 *to* 9:30. Professor COMMONS.

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66. Seminary in Economic Theory. *Throughout the year; every other week; Tu.*, 7:30 *to* 9:30. Professor ELY and Associate Professor TAYLOR.

67. Seminary on Composition and Character of European Peoples. A research course to determine the ethnic composition of the various nationalities of Europe. The inquiry will be based on anthropometric statistics, supplemented by archaeology and history. *First semester; W.*, 4 *to* 5:30. Mr. HAWES.

68. Seminary on Primitive Tribes and Institutions within the Russian Empire. Linguistic and ethnic distributions in northeast Siberia. Who are the Ainus? Primitive culture as illustrated by the customs, occupations and beliefs of the natives of Sakhalin. Comparisons with other backward peoples. *Second semester; W.*, 4 *to* 5:30. Mr. HAWES.

70. Economic Conference. The faculty and graduate students of the department meet twice each month for conference and discussion of individual investigations, current economic literature, and other suitable topics.

SPECIAL LECTURES

In addition to the regular courses of class instruction and lectures described above, special lectures are given by scholars and public men from without the University.

POLITICAL SCIENCE

EMERITUS PROFESSOR PARKINSON; PROFESSOR REINSCH; ASSOCIATE PROFESSOR SCOTT; DR. MCCARTHY, DR. MEYER; MR. DUDGEON, MR. HORNBECK, AND MR. SHEPARD.

The courses primarily for undergraduates are open for election in the sophomore and junior years. As a rule, at least five semester hours of this work should be done before electing any of the advanced courses. The courses for undergraduates and graduates are open for election by juniors, seniors, and graduates. Sophomores of advanced standing may make arrangements to take some of these courses (11, 12, 15, 19, 20, and 22).

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The requirement for an undergraduate major in Political Science, in addition to the thesis, is twenty-one semester hours as a minimum.

In order to enable students, whose main work is in fields not allied to political science and who may lack the time to take the longer courses, to obtain a general view of the problems of politics, the following arrangements have been made; certain brief lecture courses are given (courses 4 and 19) which deal with subjects of interest to students in general, and in which only a limited amount of outside reading is required. These courses deal with the American Constitution and with present day problems of international politics. Such students may also take the lectures in course 7 (American Politics and Government) and course 15 (Municipal Government), without doing the outside reading and topic work required of regular students. They will be examined only on the lectures and will receive one hour credit for the work.

Primarily for Undergraduates

7. Government and Politics in the United States. A general study of the American system of government in its local, state, and federal organs and their relations to each other, as well as of the methods of political action. *(Students may take lectures only, receiving one-hour credit.) Throughout the year; Tu., Th., at* 9. Associate Professor SCOTT.

27. European Governments. A descriptive presentation of the constitutional organization and practical working of the principal national governments of Europe; with considerable attention to political parties and current political questions. *First semester; M., W., F., at* 9. Mr. SHEPARD.

1. General Political Science. An introductory course in comparative and historical politics. *Second semester; M., W., F., at* 8. Mr. SHEPARD.

2. Elementary Law. The nature and sources of law and the methods of its application, including a general view of the system of private law. A general elective, recommended especially to students intending to study law, teachers of commercial law, and students of economics

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and politics. *First semester; M., W., F., at* 11. Associate Professor SCOTT.

3. Elements of Administration. The theory of administration and a survey of the administrative systems of the chief states of modern Europe and of the United States. *First semester; Tu., Th., at* 8. Dr. MEYER.

6. Administrative Problems. A survey of the primary administrative activities of the chief states of Europe and the United States. *Second semester; Tu., Th., at* 8. Dr. MEYER.

4. The Constitution of the United States. An outline course of lectures designed primarily for those who cannot give more time to this subject, but also for students preparing to teach civics in secondary schools. The introductory lectures of the course deal with the English constitution. *Throughout the year; Th., at* 10. Professor PARKINSON.

For Undergraduates and Graduates

8. Introduction to the History of Continental European Law.

9. Roman Law. *First semester:* The historical development of the Roman law and its reception and influence in other countries. *Second semester:* The Institutes of Roman law. The principles of the law of persons and property. *Tu., Th., at* 2. Mr. SHEPARD.

10. History of English and American Law. A study of the development of legal institutions in connection with political and social history. *Second semester; M., W., at* 12. Professor REINSCH.

11. Jurisprudence. Analysis of the main concepts of the science of law, on the basis of the juristic classics. Open to students who have had an elementary course in law. *Second semester; M., W., F., at* 11. Associate Professor SCOTT.

12. English and American Constitutional Law. Lectures upon the development of the English constitution from the time of Magna Charta, with emphasis upon its unwritten growth since the Revolution of 1688. These lectures are followed by a study of the constitution of the United States in the light of the highest judicial interpretation. *Throughout the year; M., W., F., at* 10. Professor PARKINSON.

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13. Selected Cases in Constitutional Law. A study of the principal judicial decisions and opinions interpretative of the interstate commerce clause of the federal constitution. Open to graduates and other advanced students who have had course 12 or its equivalent. *Second semester; Tu., Th., at* 11. Associate Professor SCOTT.

15. Municipal Government in Europe and the United States: A comparative study of the organization of the principal modern municipal systems, followed by a study of the leading activities of the more important cities. *Second semester; M., W., F., at* 8. *(Students may take lectures only, receiving one hour credit.)* Dr. MEYER.

16. State Administration. A study of the local and state administrative systems of the United States. *First semester; M., W., F., at* 9. Dr. MEYER.

17. Federal Administration. A study of the organization and functions of the different branches of our federal service. *Second semester; M., W., F., at* 9. Dr. MEYER.

18. International Law. The work during the first semester will deal with diplomacy and the relations in time of peace; during the second semester arbitration and the law applied in time of war will be studied. *Throughout the year; Tu., Th., at* 11. Professor REINSCH.

19. Contemporary International Politics. A course of weekly lectures on questions of international or foreign politics which are of special importance at the present time. May be elected in successive years, as subject matter is changed annually. *Throughout the year; W., at* 5. Professor REINSCH.

20. Oriental Politics and Civilization. The relations of the European powers and the United States to China and Japan, as well as the principal factors in the social and political life of Japan, China and India, will be studied. *Second semester; M., W., F., at* 10. Professor REINSCH.

21. Colonial Politics. A study of the principal systems of colonial government and of the methods of colonial public administration, especially as affecting finance, commerce, agricultural and industrial development, labor, and education in the dependencies. *First semester; M., W., F., at* 10. Mr. SHEPARD.

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22. Party Government. A study of the theory and development of the party system; the organization and methods of action of political parties in the United States; the legal control of parties; and reform tendencies. *First semester; Tu., Th., at* 10. Associate Professor SCOTT.

23. Consular Service. A study of the modern consular systems and methods, with special emphasis upon the American system. *First semester; Tu., Th., at* 10. Dr. MEYER.

25. The Law of the Press. The law of copyright, literary property, libel, privileged publications and other topics relating to the publication of books and newspapers. Designed especially for students preparing for journalism and the law. *Second semester; Tu., at* 3. Associate Professor SCOTT.

26. The Theory and Practice of Legislation. A study of the methods of procedure of legislative bodies, and the preparation of the subject matter and form of bills. The legislature is in session from January to June, in the odd-numbered years. *Throughout the year; M., W., F., at* 12. Dr. MCCARTHY and Mr. HORNBECK.

28. Comparative Study of Constitution Making. Mr. DUDGEON.

29. Teachers' Course. Methods of teaching government in secondary schools. *Second semester; Th., at* 5. Professor REINSCH.

30. Administration of Punitive Justice. This course will deal with the methods of discovery, prosecution and punishment of crime; the functions of the police, prosecuting officials and jury; and defects in the administration of criminal laws. The technical parts of criminal law and procedure will not be treated, but the study will be from the point of view of the student of political science. *Second semester; Tu., Th., at* 10. Associate Professor SCOTT.

31. Latin-American Political Institutions. A comparative study of the constitutional and administrative systems of the Latin-American Republics. *First semester; Tu., Th., at* 12.

32. Current Political Topics. Study of current political problems with training in the discriminating use of sources and in effective literary presentation. A training course designed for students preparing for journalism. Open to

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juniors, seniors and first year graduate students. *Throughout the year; Tu., Th., at* 10. Mr. HORNBECK.

33. Practical Bill Drafting. A study of the technique of bill drafting with practice in drafting actual measures. Open to senior and graduate students. *Second semester; M., F., at* 7. Dr. MCCARTHY and Mr. DUDGEON.

42. Public Utilities. A comparison of public regulation and public and private ownership of municipal utilities in American states and foreign countries, including constitutional and judicial limitations, delegation of legislative power to commissions, physical valuation, reasonable rates and service, organization of public employees, cost, efficiency, social and political results. *First semester; lectures, M., W., F., at* 8. Professor COMMONS and Mr. DUDGEON.

42a. Public Utilities, Research. *Second semester; hours to be arranged.* Professor MEYER.

Primarily for Graduates

52. Seminary in Comparative Legislation. This course is open to undergraduates who have had course 26. *Throughout the year; F.,* 4 *to* 6. Dr. MCCARTHY and Mr. HORNBECK.

55. History of Political Thought. The development of political philosophy from the Greeks to the present time, and its connection with political history. *Second semester; M., W., F., at* 9. Mr. SHEPARD.

56. Philosophy of the State. A critical study of contemporary political thought and terminology. *First semester; Tu.,* 4 *to* 6. Professor REINSCH.

57. Juristic Classics. In 1909: The Institutes of Gaius, first two books; reading and commentary. *Second semester; F., at* 12. Mr. SHEPARD.

59. Seminary in Administration. *Throughout the year; Tu.,* 7:30 to 9. Dr. MEYER.

60. Seminary in International Law and Politics. A study of some selected topics in international law and diplomacy. *Throughout the year; W.,* 7:30 *to* 9:30. Professor REINSCH.

61. Seminary in American Constitutional Law. Some important constitutional problem will be studied. *First semester; Th.,* 4 *to* 6. Associate Professor SCOTT.

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For groups of studies in the departments of History, Political Economy, and Political Science, arranged as special training courses in practical sociology, statistics, public service, and journalism, see the special announcement of the above departments, which may be had upon application to the Registrar.

INDO-EUROPEAN COMPARATIVE PHILOLOGY

1. General Phonetics. A study of the nature and production of speech sounds in the most important Indo-European languages, for students of all language departments. *First semester; twice a week. In alternate years.* Assistant Professor PROKOSCH.
2. Elements of Comparative Philology. An introductory course on the structure and development of the Indo-European languages. *Second semester; twice a week. In alternate years.* Assistant Professor PROKOSCH.
3. Elementary Sanskrit. *Throughout the year; M., W., at* 11. Associate Professor LAIRD.
4. Advanced Sanskrit. Selections from the Rig-Veda. *Throughout the year; W., at* 11. Associate Professor LAIRD.
7. Old and Middle Irish. An introductory course to Celtic Philology with readings from Irish epics. *First semester; twice a week. Every third year.* (Omitted in 1909–10.) Assistant Professor PROKOSCH.
8. Welsh. Selections from the *Mabinogion. Second semester; twice a week. Every third year.* (Omitted in 1909–10.) Assistant Professor PROKOSCH.
9. Pre-Germanic Grammar. *Throughout the year; twice a week. In alternate years.* (Omitted in 1909–10.) Assistant Professor PROKOSCH.
10. Old Bulgarian. An introduction to Slavic Philology. *First semester; twice a week. Every third year.* (Omitted in 1909–10.) Assistant Professor PROKOSCH.
11. Lithuanian. Comparative grammar and introduction to Lithuanian folklore. *Second semester; twice a week. Every third year.* (Omitted in 1909–10). Assistant Professor PROKOSCH.

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RUSSIAN

1. Elementary Russian. An introduction to the study of modern Russian speaking, writing and reading. *Throughout the year; twice a week.* Assistant Professor PROKOSCH.

GREEK

EMERITUS PROFESSOR KERR; PROFESSOR SMITH; ASSOCIATE PROFESSORS LAIRD, FISKE, SHOWERMAN, AND MISS BANNING.

A course in Elementary Greek is offered for the benefit of students who have not taken the preparatory work in the high school. It is open to all freshmen, whatever group of studies they may have offered for admission, and may also be taken in any other year, counting ten hours toward the fulfillment of the language requirement of sixteen or twenty-four hours, or as an elective in connection with any line of work. On completion of course A, a good student may, on the recommendation of the instructor, be admitted to course 1, thus gaining the opportunity of advancing more rapidly than if the second year were spent on course B. An exceptionally strong student, who has taken course A in his freshman year, and desires then to make Greek his major, may in his sophomore year take courses 1 and 2, and thereby be enabled to carry on advanced work in his junior and senior years. The requirements for an undergraduate major in Greek are, in addition to the thesis, a minimum of twenty-two semester hours, not including courses A and B.

The object of the graduate courses in Greek is to secure, on the part of advanced students, wide reading in Greek authors, acquaintance with the latest results of philological investigation through constant reading of critical journals, the forming of habits and learning of methods of research. In pursuance of the last named purpose especially, the Greek Seminary meets once a week to hear and to discuss carefully prepared papers, the members leading in turn. A full seminary course covers three years, embracing usually the following subjects: (a) Thucydides or Greek historiography, (b) the Greek Drama, (c) Greek lyric poetry. For one or other of these, course 24 or 25 is occasionally submitted.

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Primarily for Undergraduates

A. Elementary Greek. White's *Beginner's Greek Book*, Xenophon's *Anabasis*. *Throughout the year; M., Tu., W., Th., F., at* 12. Professor SMITH and Miss BANNING.

B. Xenophon's *Anabasis* III-IV, Homer's *Odyssey* I-IV, Greek Composition. *Throughout the year; Tu., Th., at* 9, *F., at* 2. Miss BANNING.

For students who have had one year of preparatory work.

1a. Herodotus VIII, Homer's *Odyssey* V-XII, Plato's *Apology* and *Crito*. *Throughout the year; M., W., F., at* 8. Associate Professor LAIRD.

For students who have had two years of preparatory work.

1b. Greek Prose Composition and Sight-reading. *Throughout the year; Tu., Th., at* 8. Professor SMITH or Associate Professor LAIRD.

2a. The *Philippics* of Demosthenes, Thucydides VII, Goodwin's *Moods and Tenses*. *First semester; M., W., F., at* 10. Associate Professor LAIRD.

Euripides, two or more plays, Jebb's *Primer of Greek Literature*. *Second semester; M., W., F., at* 10. Associate Professor LAIRD.

2b. Herodotus VII, or selected dialogues of Lucian, and Euripides, (two plays). *Throughout the year; M., F., at* 11. Professor SMITH and Associate Professor LAIRD.

For those who have had course 1, or whose preparatory work has been particularly good.

3. Greek Prose Composition. *Throughout the year; W., at* 11. Associate Professor LAIRD.

This course will be required of those who expect to get recommendations to teach Greek.

4. Easy Greek for Sight Reading. Open to those who have completed course 1. *One hour a week.* Professor SMITH.

For Undergraduates and Graduates

5a. Greek Lyric Poets. Study of meters. *First semester; M., W., F., at* 11. Professor SMITH.

5b. Thucydides; Demosthenes. *Second semester; M., W., F., at* 11. Professor SMITH.

6. Greek Dramatic Poets. *First semester*, Aeschylus (two

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plays), Sophocles (two plays). Study of meters. *Second semester*, Aristophanes (two plays), Aristotle's Poetics, discussion of the Greek drama. *M., W., F., at* 11. (Omitted in 1909–10.) Professor SMITH.

7. Greek Orators. *Throughout the year; Tu., Th., at* 9. Associate Professor LAIRD.

8. Plato. *The Republic.* Books I, II, III, and IV, with selections from other parts of the dialogue. This course is intended as an introduction to the study of Greek philosophy. *Throughout the year; Tu., Th., at* 9. (Omitted in 1909–10.) Professor KERR.

10. Advanced Greek Composition. *First semester; once a week.* Professor SMITH or Associate Professor LAIRD.

11. Modern Greek. A study of the changes in form and structure which the language has undergone since the classical period. *Throughout the year; Tu., Th., at* 9. Professor KERR.

12. Life of the Greeks and Romans. A lecture course illustrated by lantern slides. Open to all students. A knowledge of Greek and Latin is not essential. *Throughout the year; Tu., Th., at* 11. (See Latin 12.) (Omitted in 1909–10.) Associate Professor SHOWERMAN.

13. Greek literature in English Translations (Drama). A knowledge of Greek is not required. *Throughout the year; Tu., Th., at* 12. (Omitted in 1909–10.) Professor SMITH.

13a. Greek Literature in English Translations (Homer). *First semester.* For details of this course see Comparative Literature 1.

13b. Greek Literature in English Translations (Lyric Poets). A knowledge of Greek is not required. *Second semester; Tu., Th., at* 12. Professor SMITH.

15. Classical Archaeology. The history and appreciation of Greek sculpture, architecture, and painting. A course introductory to the study of art. Associate Professor SHOWERMAN. (See Latin 22.)

16. Greek Religion. (See Latin 27.)

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Primarily for Graduates

20. Thucydides. The whole of the author is read privately by the members of the class, but the formal exercises of the seminary are devoted usually to the elucidation of the speeches of a single book, especial attention being given to text criticism. *Throughout the year; S.*, 9 *to* 11. (Omitted in 1909–10.) Professor SMITH.

21. Greek Drama. Sophocles. The whole author is read privately by the members of the class. As supplementary to this course the scenic antiquities will be studied. The general treatment in courses 21 and 22 will be literary in character. *Throughout the year; S.*, 9 *to* 11. (Omitted in 1909–10.) Professor SMITH.

22. Lyric Poetry. Especial attention is given to Pindar, the whole being read privately. *Throughout the year; S.*, 9 *to* 11. Professor SMITH.

23. Greek Dialects. A study of dialect sounds and forms based on the inscriptions. Solmsen's *Inscriptiones Graecae* will in the main be followed. *Two hours a week for a portion of the year, as part of the regular seminary work.* Associate Professor LAIRD.

24. Greek Literature. Lectures, with selections from Greek authors, read by the class. Lyric Poetry. *First semester; twice a week.* Drama and History. *Second semester; twice a week.* (Omitted in 1909–10.) Professor SMITH.

25. Greek Orators. Antiphon, Andocides, Lysias, and Isaeus. The whole of these authors will be read by the class. *Throughout the year; W.*, 4:30 *to* 6. Associate Professor LAIRD.

30. Greek Grammar. History of the sounds and forms. *First semester; Tu., Th., at* 5. Associate Professor LAIRD.

31. Greek Syntax. Lectures on the development of Attic usage, with particular reference to the cases and modes. *Second semester; Tu., Th., at* 5. Associate Professor LAIRD.

33. Journal Club. Reports on and discussion of current philological literature. *Throughout the year; one hour a week.* Professor SMITH and Associate Professor LAIRD.

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LATIN

PROFESSOR SLAUGHTER; ASSOCIATE PROFESSORS FISKE, LAIRD, SHOWERMAN; DR. ALLEN, MR. BOYD, MR. BRANDT, MR. HOOTON, AND MR. SHANNAHAN.

The courses in Latin are divided into three groups, as follows:

I. Courses B to 5 are intended for undergraduates in the early years of the college course. They form an introduction to the more advanced courses, and furnish, for those who do not continue the subject beyond the second year in college, an acquaintance with the best specimens of Latin prose and verse. They may not be counted for the master's degree. Course B is intended primarily for students in the Preliminary Medical Course but may be taken by any student who desires it. Course A is intended for students whose preparation has for any reason been less than the amount nominally required for entrance to the University. It counts toward the bachelor's degree, and is accepted in fulfillment of the language required in the University. It will not be accepted as part of a Latin major. Course 1 must precede all other courses except B and A. Course 2 is recommended to students who intend to make Latin a major, and should be taken in the first year along with course 1.

II. Courses 8 to 23 are open to students who have satisfactorily completed courses 1 and 3, or an equivalent, in group I, and may be counted towards the master's degree.

III. Courses 25 to 33 are primarily for graduate students, and are ordinarily not open to undergraduates, or those who have completed less than twenty-six semester hours of undergraduate Latin.

Latin Major

The requirements for an undergraduate major in Latin are, in addition to the thesis, twenty-two semester hours as a minimum. At least eight semester hours should be chosen from group II, but no specific requirement of courses is made.

Primarily for Undergraduates

B. Elementary Latin. (Free Elective.) A course covering the elements of Latin and Caesar's *Bellum Gallicum*, Bks. I-III, will be offered, if a sufficient number of students desire it. This course can not be used to satisfy the Uni-

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versity's requirements in language. *Throughout the year; M., Tu., W., Th., F., at* 8. Mr. SHANNAHAN.

A. Cicero and Virgil. Four orations of Cicero and six books of Virgil's *Aeneid* will be read in class. Some attention will be given to writing Latin. *Throughout the year; M., Tu., W., Th., F., at* 8. Mr. HOOTON.

1. Livy, Cicero and Terence. Livy, Books I and XXI; Cicero, *De Senectute*, and Terence, *Phormio* and *Andria*, will be read. The class will meet in four sections. *Throughout the year; M., W., F., at* 8, 10, *and* 3, *and Tu., Th., S., at* 10. Associate Professors FISKE and SHOWERMAN, Dr. ALLEN and Mr. BRANDT.

2. Prose Composition and the reading of easy prose authors. The translation from Latin requires no preparation, and is intended to supplement the work in writing Latin. *Throughout the year; Tu., Th., at* 8, 10, *and* 3. Associate Professors FISKE and SHOWERMAN, Dr. ALLEN, Mr. BRANDT, and Mr. BOYD.

3. Horace. Selections from the odes, satires, and epistles of Horace. *Throughout the year; M., W., F., at* 9. Associate Professors FISKE and SHOWERMAN.

4. Advanced Prose Composition with a special study of Latin syntax. This course must be preceded by course 2. *Throughout the year; Tu., Th., at* 3. Associate Professor FISKE and Mr. BRANDT.

5. Catullus, Ovid, Pliny, and Martial. This course is intended to supplement course 3, and should be taken with or after it. *Throughout the year; Tu., Th., at* 9. Dr. ALLEN.

For Undergraduates and Graduates

8. Cicero's Letters and Orations. A reading course, with lectures and assigned topics. Special attention will be paid to the life and personality of Cicero. *First semester; M., W., F., at* 8. Associate Professor SHOWERMAN.

9. Plautus, Terence, and Seneca. This course is intended to give, by reading and supplementary lectures and topics, a general survey of the Roman drama. *First semester; M., W., F., at* 8. (Omitted in 1909–10.) Associate Professor SHOWERMAN.

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10. Lucretius. The first, third and fifth books of the *De Rerum Natura* and selections from the remaining books are read in class. Lectures and assigned readings on topics connected with the course. *Second semester; M., W., F., at* 10. (Omitted in 1909–10.) Professor SLAUGHTER.
11. Virgil. The last six books of the *Aeneid* are read in class, with selections from Virgil's other works. Lectures and assigned reading on topics connected with the course. *First semester; M., W., F., at* 10. (Omitted in 1909–10.) Professor SLAUGHTER.
12. Life of the Greeks and Romans. A lecture course illustrated by lantern slides. Open to all students. A knowledge of Greek and Latin is not essential. *Throughout the year; Tu., Th., at* 11. (Omitted in 1909–10.) Associate Professor SHOWERMAN.
13. Literary Criticism. Pre-Ciceronian Latin writers of epic and drama are studied in connection with the criticism passed upon them by later writers. Selections are also read from those portions of the writings of Cicero, Horace, and Quintilian which deal with literary criticism. *First semester; M., W., F., at* 9. (Omitted in 1909–10.) Dr. ALLEN.
14. Oratory and Philosophy. Lectures are given on the history of Roman oratory and philosophy accompanied by readings from Cicero's rhetorical and philosophical works and the philosophical works of Seneca. *Second semester; M., W., F., at* 9. (Omitted in 1909–10.) Dr. ALLEN.
21. Ovid, Tibullus, Propertius, Fragments of Roman Tragedy. The selections read are made the basis for a systematic study of classical mythology. *Throughout the year; M., W., F., at* 9. Dr. ALLEN.
16. The Teaching of Latin. A course on the methods and materials used in teaching Latin, with special reference to the work in secondary schools. Lectures, reports, discussions and practice teaching. Special attention will be given to Caesar. Open to seniors who have had not less than twenty unit-hours of Latin. *Second semester; Tu., Th., at* 12. Associate Professor FISKE and Mr. SHANNAHAN.

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17. Latin Literature. A general survey of Latin literature from the earliest period to the reign of Trajan, by means of lectures and required reading in the Latin authors, and in English translations. *Throughout the year; Tu., Th., at* 10. (Omitted in 1909–10.) Associate Professor FISKE.

18. Roman Satire. A reading course of selections from the works of Ennius, Lucilius, Varro, Horace, Seneca, Persius, Petronius, and Juvenal. Lectures are given on the origin and development of Roman satire. Topics are required. *Throughout the year; Th., 4 to 6.* Associate Professor FISKE.

19. Roman Historians to Tacitus. A reading course of selections from the Annalists, Cicero, Cæsar, Nepos, Sallust, Livy, and Tacitus. Lectures are given and topics are required. *Throughout the year; Tu., Th., at* 10. Mr. BRANDT.

20. Literature of the Late Empire. A course in pagan and Christian authors, with lectures on the religion and literature of the period. The *Cupido et Psyche* of Apuleius and the *Octavius* of Minucius Felix will be read. *Second semester; M., W., F., at* 8. (Omitted in 1909–10.) Associate Professor SHOWERMAN.

22. Classical Archaeology. (See Greek 15.) The history and appreciation of Greek sculpture, architecture, and painting. A course introductory to the study of art, consisting of lectures illustrated by means of the stereopticon. A knowledge of Greek and Latin is not necessary. Text-books and topics. *First semester; Tu., Th., at* 11. Associate Professor SHOWERMAN.

23. Roman Archaeology. Lectures on the remains of ancient Rome, with special reference to their historical and literary significance. Illustrated by lantern slides. A knowledge of Latin is not essential. *Second semester; Tu., Th., at* 11. Associate Professor SHOWERMAN.

For Graduates

25. Latin Grammar. Lectures on the sounds and forms of the Latin language. Open to graduates and properly qualified seniors. *First semester; Tu., Th., at* 12. Associate Professor LAIRD.

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26. Latin Syntax. Lectures on Latin syntax, illustrative of the historical method. *Second semester; Tu., Th., at* 12. Associate Professor LAIRD.

27. Religion of the Greeks and Romans. Lectures, studies, and reports on the mythology, ritual, and religious institutions of the Greeks and Romans. *Throughout the year; W.*, 2 *to* 4. Associate Professor FISKE.

28. Roman Archaeology. A course consisting of course 23, with an additional hour for presentation of reports on assigned topics. The extra hour will be arranged on consultation. *Second semester; Tu., Th., at* 11. Associate Professor SHOWERMAN.

30. Latin Literature. Lectures and assigned readings, with a minute examination of the authors read. A two years' course. The period of the Republic is studied the first year. The period of the Empire is studied the second year. *Throughout the year; Tu., Th., at* 12. Dr. ALLEN.

33. Latin Seminary. The work of the seminary varies from year to year according to the author or subject under discussion. In 1910–11, a critical and exegetical study of the Odes of Horace will be made. The whole of the author will be read privately by the members of the seminary, and reports, topics, and lectures will form a part of the year's work. In 1908–09, the reading and interpretation of Latin inscriptions formed the basis of the work, and a particular study was made of the early Empire. In 1909–10, course 18, Latin Satire, will take the place of the regular seminary. *Throughout the year; Th.*, 4 *to* 6. Professor SLAUGHTER.

HEBREW AND HELLENISTIC GREEK

PROFESSOR WILLIAMS, DR. WOLFENSON, AND MRS. KETELLE.

In addition to instruction in Hebrew and Hellenistic Greek, courses are offered in Arabic, Aramaic, Assyrian, and Syriac; and should occasion arise, opportunity will be given properly qualified students to prosecute studies in post-Biblical Hebrew, Talmud, Ethiopic, Semitic Epigraphy, Old Egyptian, and Coptic.

The courses given by this department are open as electives to

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students in any department of the University, and are all credited toward graduation the number of hours specified in each case. Excepting courses 1 and 2, 16 and 17, courses in Hebrew and Hellenistic Greek to the extent of 8 units may be substituted in part fulfillment of the foreign language requirement of 16 or 24 units, (see Index under Requirements for the Degree of Bachelor of Arts. 2. *Required Studies*, b. *Language*). Students electing so to substitute the work of this department may begin Hebrew or Hellenistic Greek in their freshman year, provided they continue with advanced courses (other than 1 and 2, 16 and 17). The first year's work will be credited toward graduation, but not toward fulfilling the foreign language requirement.

The various courses of this department are adapted to the needs of:

1. The general student desiring to secure a true and broad knowledge of language, literature, and history as a means to liberal culture or with a view to teaching; since this work furnishes unsurpassed linguistic training in the most important family of languages after the Indo-European and of only second importance to that family, and gives a view of a little known, but very important, domain of intellectual development.

2. The student intending to study theology, or those already in the ministry who desire to broaden their knowledge in this field; since the language, literature, history, and archaeology of the Semitic peoples is of the highest importance for theology.

3. Students of comparative religion and of comparative literature; since the Semitic languages, together with Egyptian, furnish the earliest records of religion and literature, and the respective peoples have originated and transmitted many forms of literature.

4. The student desiring to work with the original sources of history, the earliest monuments and records of which are Semitic and Egyptian.

5. The student of linguistics; as furnishing a view of a most important family of languages, a knowledge of which is essential to a thorough understanding of language-processes, and as illustrating peculiarities of phonetics.

6. The student of Semitic languages, literatures, and history for their own sake.

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Major in Hebrew and Hellenistic Greek

The requirements for a major in this department will be a minimum of 20 unit-hours, including thesis, made up from any of the courses offered, excepting 1 and 2, 16 and 17; but the amount of work required will be subject to increase and variation depending upon the progress and needs of the individual student.

Primarily for Undergraduates

1. Elementary Hebrew. The sounds, inflections, and underlying principles and differences of syntax of Hebrew. Simple exercises; reading, easy conversation, and composition. The acquirement of a correct pronunciation of the language and the ability to pronounce Hebrew fluently is insisted upon. Exercises in reading unpointed Hebrew and the committing to memory of at least two octavo pages of Hebrew. *Throughout the year; four hours per week.* Professor WILLIAMS and Dr. WOLFENSON.
2. This course covers the same ground as course 1, but beginning in the second semester of each year as a two unit-hour study, continues as such during the first semester of the following year. Professor WILLIAMS.
3. A Second-year reading course: Hebrew Historical Literature. The Books of Samuel with passages from other books for sight reading. Practice in pronunciation and simple conversation based on the texts read. A review of the Hebrew verb with special attention to the weak verbs. *Gesenius' Hebrew Grammar*, 26th English and 27th German editions. *First semester; twice a week.* Dr. WOLFENSON.
4. Advanced reading course: The Book of Deuteronomy. Hebrew legal literature. Sight reading and attention to securing a wide vocabulary. Review of Hebrew inflections with special study of the theory of roots and triconsonantism in Hebrew. Reading of unpointed Hebrew. *Second semester; twice a week.* Dr. WOLFENSON.
7. Hebrew prose composition: exercises in conversation. The more important principles of Hebrew syntax are thoroughly illustrated. Intended to be taken in conjunction with

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courses 3 and 4, but may be taken independently. *Throughout the year; once a week.* Professor WILLIAMS.

16. The Elements of Hellenistic Greek. For students who have not studied classical Greek. The forms and idioms of Hellenistic Greek: exercises and reading of selected chapters of the Gospels. Attention to the acquirement of a vocabulary. *Throughout the year; four times a week.* Mrs. KETELLE.

17. This course covers the same ground as 16, but begins in the second semester of each year as a two-hour study and continues the same for the first semester of the following year. Mrs. KETELLE.

18. Second-year reading course in Hellenistic Greek. Matthew and Mark are carefully studied with attention to the etymology of the language. Review of forms. Study of the peculiarities of the syntax of Hellenistic Greek. *Throughout the year; twice a week.* Mrs. KETELLE.

19. Luke and the Acts. A study of the history and developments of the Apostolic age. The date, authorship, composition, and purposes of the Acts. Careful study of the syntax and style of Hellenistic Greek. *Throughout the year; twice a week.* Mrs. KETELLE.

23. Hebrew History. Semitic origins, migrations, and settlements. The condition of early Palestine. The Abrahamitic migration. The genealogies and patriarchal history. Egypt and the Exodus. The conquest of Palestine to the establishment of the Kingdom. Early Kingdom to Solomon. Lectures; one paper by the class. *First semester; once a week.* Dr. WOLFENSON.

24. Hebrew History. The division of the Kingdom. The Assyrian period. Fall of Samaria. The Southern Kingdom to the Exile. The literature of the period. Assigned reading. *Second semester; once a week.* Dr. WOLFENSON.

25. Hebrew History. The period of the Exile. The Return and the Persian period. Alexander's conquest and the Greek and Syrian period. The Maccabean wars. The Roman period. *Second semester; once a week.* Professor WILLIAMS.

26. Historical Geography of Palestine: Hebrew Archaeology; recent discoveries. Lectures illustrated by lantern slides.

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Readings and reports by the class. *Throughout the year; once a week.* Dr. WOLFENSON.

For Undergraduates and Graduates

5. The Minor Prophets: a critical study of the text on the basis of the ancient versions. Recent theories of the composition and form of certain books. The historical background of the books studied. Special attention to vocabulary and syntax. *Throughout the year; twice a week.* Dr. WOLFENSON.

6. The Book of Job: critical study of the text. Hebrew wisdom, literature and philosophy. The problem of suffering among the Hebrews. *Throughout the year; twice a week.* Professor WILLIAMS.

8. Hebrew syntax: systematic study of the details of Hebrew syntax with reading of illustrative passages and composition. Study of the thought processes of the Hebrews as revealed in the syntax of their language. *Throughout the year; twice a week.* Dr. WOLFENSON.

20. The Book of John: introduction to textual criticism. Differences between John and the other Gospels: date, authorship, composition, and purpose of the book. The leading *termini technici* of John. *Throughout the year; twice a week.* Professor WILLIAMS.

27. The Psalms—Books I and II: form and characteristics of Hebrew poetry. Introduction to the theories of Hebrew metre: Cobb, *Criticism of Hebrew Metre. Throughout the year; twice a week.* Professor WILLIAMS.

Primarily for Graduates

9. Advanced Hebrew syntax: study of special problems in Hebrew syntax with reports by members of the class. Historical syntax. *First semester; twice a week.* Dr. WOLFENSON.

10. Advanced Hebrew Etymology. The origin and development of the Hebrew inflections; historical and comparative study of the verbal system. A knowledge of Arabic, at least of the other Semitic languages is essential for this course; it can, therefore, be taken only by those who have had or are taking course 12. *Second semester; twice a week.* Dr. WOLFENSON.

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11. Hebrew Seminary. Hebrew legal, historical, poetical, and prophetical literature will be the subject in successive years. Some one representative book of each type will form the nucleus of the work. During the year 1908–09 Isaiah, Chapters I–XL, was the center of the work on the Prophets. The work of the seminary is supplemented by the reading courses whose subject is parallel with that of the seminary for the year. A knowledge of Hellenistic Greek, Latin, German, and French is necessary for effective work. Capable students, however, not having a knowledge of all of the languages specified will be admitted to the seminary with the permission of the director. Credit for the work of the seminary will vary in individual cases according to the amount of work accomplished. *Throughout the year; once a week (two-hour session).* Professor WILLIAMS and Dr. WOLFENSON.
12. Elementary Arabic: the sounds, inflections, and broad outlines of syntax. Exercises and reading of easy prose. Acquirement of vocabulary. Use of Arabic for lexicographical purposes. Comparison with Hebrew. *Throughout the year; twice a week.* Dr. WOLFENSON.
13. Advanced Arabic: a reading course in the Qur'ân and selections from the Arabic historians. Lectures and readings on the early history of Islam. History of the Qur'ân. *Throughout the year; once a week.* Dr. WOLFENSON.
14. Elementary Assyrian. The sounds; correspondence of Hebrew and Arabic with Assyrian; inflections; study of the signs. Reading of selected texts. Friedrich Delitzsch, *Assyrian Grammar*, and *Assyrische Lesestücke*, 4th ed.; Bruno Meissner, *Assyrisch-Babylonische Chrestomathie.* Introduction to Sumerian. The use of Assyrian for Hebrew and Semitic lexicography. Assyrian discoveries. *Throughout the year; twice a week.* Dr. WOLFENSON.
15. Biblical Aramaic (ten weeks); Syriac (remainder of the year). The dialects of Syriac; use of Syriac for comparative purposes. Reading of selections in Brockelmann's Syriac Grammar. Roediger's Syriac Chestomathy. *Throughout the year; twice a week.* Dr. WOLFENSON.
21. Hellenistic Greek Seminary. In successive years the Epistle of Paul to the Romans, the Second Gospel, and the Fourth

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Gospel will form the center of the work. *Throughout the year; once a week (two-hour session).* Professor WILLIAMS and Mrs. KETELLE.

22. Advanced Hellenistic Greek Grammar; the investigation of special problems in syntax. *Throughout the year; twice a week.* Professor WILLIAMS.

ROMANCE LANGUAGES

PROFESSORS OWEN, SMITH; ASSOCIATE PROFESSOR GIESE; ASSISTANT PROFESSORS GAY, REED; MR. CATTELL, DR. CERF, MR. COOL, MR. HERRICK, MR. MICHELL, MR. SCHLATTER, DR. ZDANOWICZ; MR. GALLAND, MR. INGLIS, MR. MILLER; MR. HACKER.

French courses numbered below 10 are for students who have had no French, or have had less than two years in the high school. Students with only one year of high school French or its equivalent, may be allowed to enter course 4.

Courses beginning with 10 and numbered below 20 are for students who have had one year of college French, or two years of high school French. Students who have had more than two years of high school French should consult with the department before entering any French course.

Courses beginning with 20 and numbered below 40 are for students who have had at least two years of college French, while courses numbered 40 and above are primarily for graduates.

Courses in all the Romance languages marked C and E are intended for Commerce and Engineering students. Similar courses are nearly always given for the students of the College of Letters and Science, who will not be allowed to take Commerce and Engineering courses except by special permission of the instructor.

Students are allowed to major in French alone or by combining French with Spanish and Italian. The minimum requirement will vary according to the courses taken; students should consult with the department for complete details.

FRENCH

For Undergraduates

1. Elementary French. Grammar, reading, composition, and oral exercises. Fraser and Squair, *French Grammar.* The

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reading will be done in simple modern French prose. Considerable attention will be paid to pronunciation. *Four hours a week.* Thirteen sections. Assistant Professor REED; Dr. CERF, Mr. COOL, Mr. HERRICK, Mr. MICHELL, Mr. SCHLATTER, Dr. ZDANOWICZ; Mr. GALLAND, Mr. HACKER.

2. Elementary French. Special course for students who have had at least four years of Latin or German. *Tu., W., Th., F., at* 8. Assistant Professor GAY.

3. Elementary French. Begins the second semester and covers the work done in the first semester of course 1. Students taking this course may continue their work the following year with course 4. *M., W., F., S., at* 8, Mr. HERRICK; and *Tu., W., Th., F., at* 10, Dr. ZDANOWICZ.

4. Advanced Elementary French. This course continues French 3, covering, in the first semester, the work of the second half of French 1 and, in the second semester, somewhat more than the first half of second year French. Open to students who have commenced French in the summer session or who enter with one year of high school French. *Tu., W., Th., F., at* 10, Mr. SCHLATTER; *Tu., W., Th., F., at* 12, Mr. CATTELL.

5E. Elementary French for Engineers. In the first semester the work will be for the most part the same as that in course 1, except that more attention will be paid to reading. During the second semester Herdler, *Scientific Reader* or other works of similar character will be introduced. *Four hours a week.* Three sections. Mr. GALLAND, Mr. INGLIS.

6C. Elementary French for students in Commerce. Reading, composition, and oral exercises. Fraser and Squair, *French Grammar;* easy prose. *Tu., W., Th., F., at* 9. Mr. CATTELL.

10. Second-year French. Reading and grammar. The following texts are intended to represent the character of the reading, rather than the actual works that may be used in each section. Mérimée, *Colomba;* Daudet's stories; Lamartine, *Jeanne d'Arc;* Renan, *Ma Soeur Henriette;* Augier and Sandeau, *Le Gendre de M. Poirier;* Molière, *L'Avare. M., W., F., at* 8, Associate Professor GIESE; *M., W., F., at* 9, Professor SMITH; *M., W., F., at* 9, Dr. ZDANOWICZ; *Tu., Th.,*

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S., *at* 8, Dr. CERF; *M.*, *W.*, *F.*, *at* 10, Mr. CATTELL; *M.*, *W.*, *F.*, *at* 10, Assistant Professor GAY; *M.*, *W.*, *F.*, *at* 12, Mr. MICHELL.

11. Second-year French. Reading and grammar. *Le roman d'un jeune homme pauvre*, *La Petite Fadette*, and two plays of Molière. *M.*, *W.*, *F.*, *at* 11. Professor OWEN.

12. Lectures on Thought and Language. *First semester; M.*, *at* 11. At present embodied in course 11. Professor OWEN.

14. French Composition. Intended to supplement the second-year courses given above, and, except by special permission of the instructor, can be taken only by students of some other French course. *F.*, *at* 8; *Th.*, *at* 12. Mr. HERRICK.

15. French Conversation. The work is confined mainly to the class-room. Except by special permission, it can be taken only in connection with some other French course. *Tu.*, *Th.*, *at* 8; *M.*, *W.*, *at* 8; *Tu.*, *Th.*, *at* 10. *One unit-hour.* Mr. HERRICK.

17C. Second-year French. For students in Commerce. A practical course in conversation, composition, and reading. *Tu.*, *Th.*, *at* 11. Mr. CATTELL.

18. Rapid Sight Reading. The work will be confined largely to the class-room. Except by special permission, it can be taken only in connection with some other French course. *Tu.*, *Th.*, *at* 9. *One unit-hour.* Mr. SCHLATTER.

19. Romance Countries. A lecture course in English on the historic monuments and physical features of France, Italy, Spain and Portugal. Lectures and assigned reading. Knowledge of French not required. *Once a week. One unit-hour.* Mr. HERRICK.

For Undergraduates and Graduates

20. Advanced Reading. Continuation of course 11. *Cinq-Mars*, *Ursule Mirouet*. *M.*, *W.*, *at* 12, unless changed by special arrangement. Professor OWEN.

33. Advanced Reading. Of suitable grade to follow course 20. Hugo, *Travailleurs de la mer*. *M.*, *W.*, *at* 3. Professor OWEN.

31. General Survey of French Literature. An elementary outline course recommended as an introduction to more ex-

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tended study of special periods. Only the main currents of the literature and the writers of prime importance will be dealt with. A considerable amount of reading will be done in and out of class, in addition to lectures and occasional reports on authors read. *M., W., F., at* 8. Assistant Professor REED.

21. French Literature. From the Renaissance to the Revolution. Lectures with collateral reading. *W., F., at* 9. Associate Professor GIESE.

34. The Nineteenth Century. Lectures with collateral reading. *Tu., Th., at* 10. Associate Professor GIESE.

28. French Lyric Poetry and Versification. A study of lyric poetry from Villon to recent times. Lectures on French verse-structure from its origin to the present. *Second semester; three hours a week.* (Omitted in 1909–10.) Professor SMITH.

26. French Literature. The French Novel. Lectures on the development of the novel in Romance countries. Reading of representative French novels of the seventeenth, eighteenth and nineteenth centuries. *First semester; M., W., F., at* 11. Dr. CERF.

25. French Literature. Prose writers of the seventeenth century. The class reading will be taken from Descartes, *Discours de la Méthode;* La Rochefoucauld, *Maximes;* La Bruyère *Caractères;* Bossuet, *Oraisons funèbres;* Pascal, *Lettres Provinciales,* and will be accompanied by lectures and collateral reading on the authors studied and their work in relation to the intellectual and literary evolution of the century. *Second semester; M., W., F., at* 11. (Omitted in 1909–10.) Dr. CERF.

22. French Literature. The classic drama. A detailed study of the literary and social influences that produced the classic drama. The first semester will be devoted mainly to Corneille and Racine; the second, to Molière. *Tu., Th., at* 9. Dr. ZDANOWICZ.

37. Molière. All of Molière's plays will be studied. Several representative comedies will be read in class. Lectures and assigned reading on Molière and the theater of the time with some considerat'on of his influence on later

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French comedy. *First semester; M., W., F., at* 10. (Omitted in 1909–10.) Dr. ZDANOWICZ.

32. French Literature. A study of literary movements in the eighteenth century. Lectures and reading from representative authors. *Second semester; M., W., F., at* 11. Mr. MICHELL.

23. French Literature. The modern drama. The course will begin with the Romantic Movement. In the second semester some attention will be given to the works and the trend of the French theater during the last decade down to 1909. Lectures and assigned reading. Representative works will be read in class. Characteristic class reading is: Hugo, *Hernani*, Augier, *Le Gendre de M. Poirier*, Rostand, *Cyrano de Bergerac. M., W., F., at* 10. Professor SMITH.

29C. Third-year French. For students in Commerce. *Twice a week.* Mr. CATTELL.

30C. Fourth-year French. For students in Commerce. Conversation, reading, and commercial correspondence. A continuation of course 29C. *Twice a week.* (Omitted in 1909–10.) Mr. CATTELL.

24. Advanced Composition and Conversation. Practice in writing and speaking based on nineteenth century authors. *Tu., Th., at* 10. Assistant Professor GAY.

27. Advanced Conversation. Open to students who have had two or more years of French. Of suitable grade to follow French 15. Can be taken only in connection with some other French course except by consent of the instructor. *Tu., Th., at* 9. *One unit-hour.* Associate Professor GIESE.

35. The Teaching of French. A study of the aims and methods in teaching French. Lectures and reports (one hour). A review of the essentials of grammar taught in first year French (one hour). *First semester; one or two unit-hours.* Professor SMITH and Assistant Professor GAY.

36. The Teaching of French. A review of the work in second year teaching, dealing particularly with the following points: Pronunciation, reading, and composition (one hour). Practice teaching and visiting of classes, assigned work and reports (one hour). *Second semester; one or two unit-hours.* Professor SMITH and Assistant Professor GAY.

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38. French Pronunciation. The elements of phonetics and their application in the pronunciation of French. Reading from Passy-Rambeau, *Chrestomathie Phonétique. Second semester; Tu., at* 11. Dr. CERF.

For Graduates

40. Old French. An introductory course. Phonology and grammar. Lectures and reading. Primarily for graduates, but may be taken by undergraduates of suitable preparation. *Twice a week.* (Omitted in 1909–10.) Mr. SCHLATTER.

41. Old French. An introduction to the Old French language and to the general laws of phonetic development from Latin to French. Nyrop, *Grammaire Historique de la Langue Française; La Chanson de Roland; Aucassin et Nicolette.* Undergraduates of sufficient preparation will be admitted to this course. *Twice a week.* Assistant Professor GAY.

42. Old French Literature. The Old French epic poetry. Lectures and collateral reading. The history of the *Chansons de Geste* will be traced and several representative poems read during the year. The theories of G. Paris, Rajna and Bédier on the origin of the French epic will be treated at some length. Students in this course must be able to read Old French. *W.*, 4 *to* 6. Professor SMITH.

43. Seminary in Old French. A study of the group of Old French epic poems known as the Cycle of the Crusades. Relation and development of the various branches with consideration of related prose works in Latin, Old French and other languages. In the second part of the course a short introduction to Romance paleography will be given and some time devoted to the establishment from manuscript copies of a critical edition of a part of *Godefroi de Bouillon.* For graduates only. *Three hours a week.* (Omitted in 1909–10.) Professor SMITH.

44. Old Provençal. Phonology and grammar. Poetry of the troubadours and other Provençal literature. Texts: Grandgent, *Phonology and Morphology of Old Provençal;* Appel, *Provenzalische Chrestomathie;* Restori, *Letteratura Provenzale.* Open to undergraduates of suitable preparation.

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Twice a week. (Omitted in 1909–10.) Assistant Professor REED.

49. Chrestien de Troyes. Reading and study of his works. Open to students who have had work in Old French. Recommended to those who expect to take course 50. *First semester; twice a week.* (Omitted in 1909–10.) Assistant Professor GAY.

50. The Arthurian Epic. Lectures on the origin and influence of the *Matière de Bretagne* with class and collateral reading. Some attention will be given to the interrelation of the French and English literatures through the Celtic romances, but the chief study will be devoted to the Old French poems due to the Celtic influence. Students must be able to read Old French. *Second semester; twice a week.* (Omitted in 1909–10.) Professor SMITH.

47. Literature of the Middle French Period. General survey of the 14th, 15th, and 16th centuries; particular attention will be devoted to Froissart, Commines, Villon, Rabelais, and Montaigne. *Twice a week.* Assistant Professor GAY.

52. Medieval French Drama. The liturgical drama, the miracle and mystery plays. The derivation of the French drama from the Latin liturgical drama and its relation to the early religious plays of other countries, especially of Spain. The popularity of the miracle and mystery plays. The development of theatres and actors and the causes of the decline in the fifteenth century. *Second semester; F., 2 to 4.* Professor SMITH.

48. Medieval Literature. Its beginnings in Europe with special reference to the influence of French and Provençal literature on the other countries of Europe. Lectures and assigned reading. *Twice a week.* Assistant Professor REED.

45. Principles of Language. Examination of linguistic thought, its special nature, and the less obvious verbal means of indicating both the elements of thought and their mode of combination. (See also course 12.) *First semester; at hours to be arranged.* Professor OWEN.

46. Victor Hugo. A detailed study of Hugo's later work (1852–1885). Lectures and reports with extensive reading. Conducted in French. May be taken by undergraduates of

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sufficient preparation. *Twice a week.* (Omitted in 1909–10.) Associate Professor GIESE.

51. French Classical Poetry from the Renaissance to the Age of Louis XIV. A detailed study of the origin and growth of the classical ideal in French poetry. Lectures and reports with extensive reading. *Twice a week.* Associate Professor GIESE.

ITALIAN

For Undergraduates and Graduates

1. Elementary Italian. Grammar, pronunciation, and easy composition. Reading from Bowen, *Italian Reader*, and such writers as Manzoni, Fogazzaro, Leopardi, and Alfieri. *M., W., F., at* 11. Mr. SCHLATTER.

2. Italian Literature. Reading from the most important works of Italian literature with supplementary lectures. Students are requested to provide themselves with D'Ancona e Bacci, *Manuale della Letteratura Italiana*, Vol. I. (Barbèra, Firenze, 1903) and Ford's *Romances of Chivalry in Italian Verse.* (Holt & Co., New York, 1907.) (Omitted in 1909–10.) Mr. SCHLATTER.

For Graduates

60. Dante. The life and times of Dante, with special study of the Divine Comedy. Open to undergraduates of suitable preparation. *Tu., Th., at* 11. Mr. SCHLATTER.

SPANISH AND PORTUGUESE

Primarily for Undergraduates

1. Elementary Spanish. Grammar and reading. Giese, *First Spanish Book;* Alarcón, *Novelas Cortas, El Capitán Veneno;* Valdés, *Marta y María.* For students of the College of Letters and Science. *M., W., F., at* 9. Mr. MICHELL; *M., W., F., at* 12. Mr. COOL.

2EC. Elementary Spanish for students in Commerce and Engineering. Giese, *First Spanish Book*, and other easy prose. Students in the College of Letters and Science must take course 1, except by special permission of the instructor. *Four times a week. at* 8, 9 *and* 10. Mr. COOL, Mr. MILLER.

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3. Nineteenth Century Spanish. The modern novel, drama, and poetry will be studied. Open to students who have had elementary Spanish. *Tu., Th., at* 8. (Omitted in 1909–10.) Associate Professor GIESE.

4. Spanish literature. Cervantes, *Don Quijote*, Calderón, *El Mágico Prodigioso*, and other classics. Open to students who have had elementary Spanish. *Tu., Th., at* 8. Assistant Professor REED.

6C. Second year in Commerce. Conversation, composition, and reading. In this course special attention is paid to the vocabulary of everyday life. Students in the College of Letters and Science who have had one year of Spanish must take course 3 or 4, unless allowed by special permisson to enter this course. *Tu., Th., at* 11. Mr. COOL.

7C. Third year in Commerce. Conversation, commercial correspondence, and reading. In this course especial attention is paid to the vocabulary of commerce. *Tu., Th., at* 8. Mr. COOL.

8C. Fourth year in Commerce. Continuation of course 7C. *Twice a week.* Mr. COOL.

9. Conversation and Composition. *Once a week. One unit-hour.* Mr. COOL.

Primarily for Graduates

70. Old Spanish. Lectures on the Spanish epic with collateral reading. Old Spanish grammar. Texts: *Gramática Histórica Española*, by R. Menéndez Pidal; *Poema del Cid*, edited by Pidal; *Poetas Castellanos Anteriores al Siglo* XV *(Biblioteca de Autores Españoles.)* Open to undergraduates of sufficient preparation. *Twice a week.* Assistant Professor REED.

11. Portuguese. Language and Literature. Class reading (Camões, *Os Lusiadas*) with lectures on the development of the language and the history of the literature. *Twice a week.* (Omitted in 1909–10.) Assistant Professor REED.

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SCANDINAVIAN LANGUAGES

PROFESSOR OLSON.

This department offers instruction in all of the Scandinavian languages (Norwegian, Danish, Swedish, and Old Norse). From one year's instruction in Modern Norse the student is expected to be able to read both Norwegian and Danish authors. The principal courses are devoted mainly to Norwegian authors, but additional instruction in Danish and Swedish literature is offered to students desiring to pursue these branches beyond the limits of the prescribed courses.

Courses 2a and 2b, taken together, or courses 3 and 4, may be taken as part of the required language work. (See Index under Required Studies.)

Primarily for Undergraduates

1. Modern Norse. Olson's *Norwegian Grammar and Reader*, together with easy selections in prose and poetry. For beginners. *Throughout the year; three hours a week.*

2a. Modern Norse. Selections from the *Reader*. Björnson's *Synnöve Solbakken* (Flom's edition), and his shorter peasant stories. *Throughout the year; three hours a week.*

2b. Written and Oral Translation into Norse. The reading of prose selections as a basis for work in composition and conversation. *Throughout the year; once a week.*

3. Kielland's *Skipper Worse* and Gundersen's *Norske Digte*. Two dramas by Holberg and three by Oehlenschlaeger are assigned for outside reading. *Throughout the year; twice a week.*

4. Ibsen's *Brand* and *Peer Gynt*. As these dramas are of the greatest importance in Scandinavian literature, they are read critically and studied from both a linguistic and literary point of view. Much stress is placed on an adequate ethical interpretation. *Throughout the year; twice a week.*

5. History of Dano-Norwegian Literature. Broch and Seip's *Norsk og dansk Litteraturhistorie* and Prestgard's *Norske Kvad*, with lectures and papers presented by students on the authors under discussion. *Throughout the year; two hours a week.*

6. Swedish Literature. Tegner's *Frithiofs Saga*. Runeberg's

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Fänrik Stals Sägner, Vinsnes and Aanrud's *Svenske Digtere*, and Warburg's *Svensk Litteraturhistoria*. Selma Lagerlöf's *Gösta Berlings Saga* and *Jerusalem* are assigned for outside reading. *Throughout the year; twice a week.*

7. Lectures on Norse Mythology and the Volsunga Saga. These subjects are also considered with reference to their relation to the *Nibelungenlied* and Wagner's *Ring des Nibelungen*. *First semester; Th., at* 2.

7a. Lectures on early Scandinavian literature and antiquities, with illustrative readings in transl tion. Special attention is given to the Saga literature. *First semester; Tu., at* 2.

7b. Lectures on modern Scandinavian authors and literary epochs, with illustrative readings in translation. A study of Ibsen's life and works is the main feature of the course. *Second semester; Tu., at* 2.

7c. An intensive study of selected dramas of Ibsen in English. *Second semester; Th., at* 2.

A knowledge of the Scandinavian languages is not required for courses 7, 7a, 7b, and 7c.

For Undergraduates and Graduates

8. Old Norse. Vigfusson and Powell's *Icelandic Prose Reader* or Kahle's *Altisländisches Elementarbuch* and Nygaard's *Udvalg af den norröne Literatur. Throughout the year; twice a week.*

2c. Modern Norse. Olson's *Grammar and Reader*, Björnson's *Synnöve Solbakken* and the shorter peasant stories, Ibsen's *Samfundets Stötter*, *Et Dukkehjem*, *Kongsemnerne*, *Brand*, and *Peer Gynt*. A rapid reading course for graduates who have a good knowledge of other modern languages. *Throughout the year; three hours a week.*

9. Modern Norwegian Literature. The critical reading of representative dramas and novels. The principal authors studied are Ibsen, Björnson, Lie, and Kielland. *Throughout the year; twice a week.*

10. Studies in Norwegian Poetry. Selections from Wergeland, Welhaven, Munch, Moe, Björnson, and Ibsen, to illustrate the different epochs in the development of modern Norwegian literature. *First semester; once a week.*

11. Norwegian Dialect Writers. The principal authors consid-

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ered are Aasen, Vinje, Garborg, and Sivle. Some attention is also given to the language reform movement. *Second semester; once a week.*

12. Scandinavian Literature. A general survey, with critical study of special periods. *Throughout the year; twice a week.*

GERMAN

PROFESSORS HOHLFELD, VOSS; ASSISTANT PROFESSORS EVANS, GOODNIGHT, KIND, PROKOSCH, ROEDDER, STERLING; MR. BRUNS, DR. FEISE, DR. HAERTEL, DR. MORGAN, DR. REINHARD, DR. VEERHUSEN; MR. ARON, MR. DEIHL, MR. GREUBEL, MR. HEILMANN, MR. HOERGER, MR. KIRSHMAN, MR. MUENZINGER, MR. SCHAFFRATH, MR. TITSWORTH.

The courses in German are divided into the following four groups:—

A. The elementary courses represent the work ordinarily done in first and second year classes, and are so graded as to meet the needs of high school graduates with different degrees of preparation. Students without previous work in German enter course 1; those who have had two years of high school German enter course 2, 2L, 2S, 2C, or 2E; those who have taken three years of German in the high school enter course 2A, completing the equivalent of course 2 by the end of the first semester. Freshmen with four years of high school German are not allowed to enter any of these elementary courses. They should take up German 3A, unless their general course of study requires a special class in German, like 3S or 3C. Students who possess a thorough practical knowledge of German considerably in advance of what their high school work indicates, should present themselves for an informal examination with a view of being assigned to more advanced classes. Credit for the omitted lower work will, however, be granted only in exceptional cases, regulated by special rules of the faculty, and never without a formal examination.

B. The advanced practice courses differ much in character and grade of work, but have this in common that they do not deal chiefly with literature, but are intended for specific, practical ends, definitely stated in each case. None of these courses

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is required of students wishing to study German solely for its literature. Such students after completing course 2, should select their work from courses 15 to 20, though some of the work in composition, conversation, or sight reading may be advisable in connection with their literary courses.

C. The courses from 15 to 48 are literary courses of very different degrees of advancement, those from 40 to 48 being open to undergraduate students only in exceptional cases. Many of the less advanced courses, from 15 to 27, though different in subject matter, are of about the same grade. Elections from this group, therefore, are subject to certain restrictions stated below, after course 27. Ordinarily, about twelve unit-hours from courses 15 to 27 will be adequate preparation for the more advanced work in literature, as well as for the more elementary courses in philology. Students intending to specialize in German literature are advised to do related work in English literature, in medieval and modern history and in philosophy. They should also pursue, to a fair degree of advancement, the study of at least one other foreign language and literature, ancient or modern. Their attention is also called to the courses ment'oned under "Comparative Literature."

D. The courses from 50 to 65 are devoted to work in German philology. While most of these courses are intended for graduate students working for a higher d gree in German, some of them are well suited to the needs of advanced undergraduates. This is especially true of courses 50 and 51, which are required of all students expecting to teach German as their principal subject; but also of courses 52, 53, 57, and 59, all of which are so conducted as to be of direct benefit to properly qualified seniors.

Major in German

Students beginning the study of German in the University with course 1 will generally not be able to choose German as their major to good advantage. Students taking course 2 in their freshman year should, as a minimum, devote to German eight unit-hours a year for the remaining three years, taking thus, including the thesis, a total of twenty-four unit-hours in advance of course 2. At least eight of these hours should represent class work in advance of course 27. This amount represents a minimum which will rarely prove suffic'ent in the case of those

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preparing to teach German as their principal subject. Of students of the latter class the following courses are required: 10 or 12, 14, 30 or 31, 50 and 51. Students preparing to teach some other subject as their major, with German as minor, will be required to complete course 10 or 12 and at least one course in German literature selected from courses 21 to 27 inclusive.

As to the maximum number of hours which students may elect in German, the following rules apply in accord with the general statement on page 102 under "electives": Students beginning their university work in German 1, 1A, or 2 may take up to forty-six hours, those entering 2A up to forty-three hours, those entering higher classes may not exceed forty hours.

Germanistische Gesellschaft

The Germanistiche Gesellschaft is an organization of students and instructors interested in the study of the German language and literature and of German life and culture. There are two general meetings each month, on Wednesday evenings, the programs consisting of lectures, recitations, dramatic performances, singing, and social entertainments. All students specializing in German, preparing to teach German, or wishing to keep up their knowledge of German, are urged to attend regularly.

ELEMENTARY COURSES

For Undergraduates

1. Beginners' German. Grammar and easy readings, with practice in speaking and writing German. *Throughout the year; four hours a week.* Seven sections. Assistant Professors EVANS, PROKOSCH; Dr. HAERTEL, Dr. VEERHUSEN; Mr. DEIHL, Mr. HEILMANN, Mr. KIRSHMAN, Mr. SCHAFFRATH.

1B. Beginners' German. Second semester only. In this course the work of the first semester is repeated. Students beginning the study of German at this time may continue their work in the following year, in course 1A. *Second semester; Tu., W., Th., F., at* 2. Dr. VEERHUSEN.

1A. Advanced First Year German. Open to students who have taken course 1B or, for some special reason, have had but one year of German at the high school. *Throughout the year; Tu., W., Th., F., at* 11. Two sections. Mr. ARON, Mr. GREUBEL, Mr. SCHAFFRATH.

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2. Second Year German. Modern prose, narrative and dramatic, selected lyrics, and a drama by Schiller. Review of the first year grammar, and elementary syntax. Written and oral exercises. For students who have had course 1, or two years of high school German, or an equivalent. Engineering freshmen may take course 2 in place of 2E. *Throughout the year; four hours a week.* Ten sections. Assistant Professors GOODNIGHT, STERLING; Dr. FEISE, Dr. MORGAN, Dr. REINHARD; Mr. ARON, Mr. HEILMANN, Mr. HOEBGER, Mr. MUENZINGER, Mr. TITSWORTH.

2L. Second Year German. Especially arranged for students of Latin or Greek, and others who have already had considerable linguistic training. More ground will be covered than in the other sections of German 2. *Throughout the year; Tu., W., Th., F., at* 11. Dr. VEERHUSEN.

2S. Second Year German. For students specializing in science. Identical with course 2, except that easy scientific prose is introduced in part of the second semester. *Throughout the year; Tu., W., Th., F., at* 11. Dr. HAERTEL.

2C. Second Year German. For freshmen in the course in commerce. Practically identical with course 2. *Throughout the year; Tu., W., Th., F., at* 9. Mr. BRUNS.

2E. Second Year German. For freshmen in engineering. A regular second year's course, practically identical with course 2. *Throughout the year; four hours a week.* Five sections. Assistant Professor KIND; Mr. DEIHL, Mr. HOEBGER, Mr. KIRSHMAN.

2A. Advanced Second Year German. Open to students who enter the university with three years of high school German or its equivalent. *Throughout the year; four hours a week.* Three sections. Mr. BRUNS, Dr. MORGAN; Mr. MUENZINGER.

ADVANCED PRACTICE COURSES

Primarily for Undergraduates

3A. Third Year German. Modern and classical prose and verse. Oral and written work. Study of syntax. Open only to freshmen who enter the university with four years of high school German. *Throughout the year; M., Tu., W., Th., a* 12. Dr. MORGAN.

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3S. Scientific German. For students specializing in science who have had course 2 or 2S. Rapid reading of scientific prose. *Throughout the year; W., F., at* 9. Assistant Professor STERLING.

3C. For Sophomores in the course in commerce. Reading, conversation, and composition. *Throughout the year; Tu., Th., at* 11. Dr. FEISE.

4C. For juniors in the course in commerce. Reading, conversation, and composition, chiefly on topics of special value to students of commerce. *Throughout the year; Tu. Th., at* 9. Dr. MORGAN.

5C. For seniors in the course in commerce. A continuation of the work of 4C. *Throughout the year; Tu., Th., at* 11. Assistant Professor PROKOSCH.

6. Grammar and Composition. Open to students who have had course 2 or an equivalent, but desire more practice in grammar and prose composition. Without special permission, this course can be taken only in connection with some other course in the department. *M., at* 12. Assistant Professor KIND.

7. Elementary Conversation. Class practice, with work at home not to exceed one hour a week. Open on the same conditions as course 6. *One hour credit. Throughout the year; two hours a week.* Four sections. Mr. BRUNS, Dr. FEISE, Dr. REINHARD, Dr. VEERHUSEN.

8. Dramatic Reading. Recitation of poems and reading of dramas with divided parts, with special attention to pronunciation and expression. Open, after consultation, to students of fair advancement in German. Not open to freshmen. *One hour credit. M., W., at* 2. Assistant Professor GOODNIGHT.

9. Critical German Prose. Rapid reading in history, biography, criticism, etc. Especially designed for students who wish to read with ease German books on historical, philosophical, and literary topics. Open to students who have had at least course 2 or an equivalent. *Tu., Th., at* 2. Dr. MORGAN.

10. Composition and Conversation; with special work in German syntax. Open to students who have had at least four semester hours in advance of course 2. *Throughout the*

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year; two hours a week. Five sections. Assistant Professors GOODNIGHT, STERLING; Dr. HAERTEL, Dr. VEERHUSEN.

11. Sight Reading. Rapid translation of literary and critical prose, especially intended for students who need practice in putting German into Engish. Open on the same conditions as course 9. *One hour credit. Throughout the year; twice a week.* Dr. HAERTEL.

12. Advanced Practice in Writing and Speaking German. Discussions and essays on topics of German life and literature. Open to advanced students specializing in German. This course is decidedly in advance of course 10; but ordinarily students should take only one of the two courses. *Tu., Th., at* 10. Assistant Professor PROKOSCH.

13. Grammar Review. A detailed discussion of theoretical grammar from the standpoint of the high-school teacher. Open to seniors and graduate students. *Second semester; two hours a week.* Assistant Professor EVANS.

14. The Teaching of German. A critical study of the methods of teaching modern foreign languages. Lectures, reports, discussions, and practice teaching. Open to seniors and graduate students. *First semester; M., W., at* 3. Assistant Professor EVANS and Professor VOSS. (Given in 1908–09 by Assistant Professor PROKOSCH.)

The attention of the students in this course is called to course 53, General Phonetics.

Courses 12 and 14 may be counted toward the master's degree by graduate students taking German as their major.

GERMAN LITERATURE

Primarily for Undergraduates

15. Classical and Modern Writers. Selections from eighteenth and nineteenth century authors, and written exercises. For students who have had second-year German. Two sections. *M., W., F., at* 9 *and* 10. Assistant Professor EVANS, Dr. VEERHUSEN.

To make suitable four or five hour courses, 15 should be combined with 6, 7, 8, 9, 11, or 20.

17. Modern German Dramatists. Selected dramas of Grillparzer, Hebbel, and other authors, like Ludwig, Sudermann, and

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Hauptmann. A rapid reading course. *M., W., F., at* 11. Assistant Professor KIND.

18. Modern German Novelists. Selected novels of Scheffel, Freytag, Keller, C. F. Meyer, and Sudermann. A rapid reading course. *M., W., F., at* 11. Dr. FEISE.

20. Schiller. Introductory study of his life, and selected works. *Maria Stuart* or *Braut von Messina, Gedichte,* and *Wallenstein. Throughout the year; two hours a week.* Three sections. Assistant Professors ROEDDER, STERLING; Dr. HAERTEL.

Courses 17 to 20 are primarily intended for students who have had course 2 or its equivalent. Students having had more than four semester hours in advance of course 2 will be required to do additional work to receive full credit.

21. Modern German Poetry. *First semester:* Lyrics and ballads. *Second semester:* Epic poems, as Scheffel's *Der Trompeter von Säkkingen. M., W., F., at* 12. Assistant Professor STERLING.

22A. Heine. Introduction to the study of his life and poetry. Lyrics, *Harzreise,* and other prose writings. *First semester; M., W., F., at* 10. Mr. BRUNS.

22B. Hebbel. Introduction to the study of his life, poetry, and theory of art. The class will read several dramas and selections from letters and diaries. *Second semester; M., W., F., at* 10. Mr. BRUNS.

23. Goethe. Introductory study of his life, and selections from his works. *Götz* and *Egmont. Tu., Th., at* 9. Alternates with course 24. Professor VOSS.

24. Lessing. Introductory study of his life, and selections from his works. *Emilia Galotti, Nathan,* and prose selections. *Tu., Th., at* 9. Alternates with course 23. (Omitted in 1909–10.) Professor VOSS.

26. Lessing, Goethe, and Schiller. An introduction to the classical literature of the eighteenth century. Lessing's *Hamburgische Dramaturgie,* Goethe's poems, Schiller's correspondence with Goethe. *Tu., Th., at* 12. Alternates with course 27. (Omitted in 1909–10.) Professor HOHLFELD.

27. Nineteenth Century Drama. An introductory study of the development of the German drama from Kleist to Hauptmann. The class will read representative dramas of the

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period. *Tu., Th., at* 12. Alternates with course 26. Professor HOHLFELD.

Courses 21 to 27 are intended for students who have had at least six unit-hours in advance of course 2.

Without special permission, no student is allowed to count more than two of the courses from 15 to 20, and three year courses, or their equivalent, from 21 to 27.

For Undergraduates and Graduates

30. Goethe's Faust. Both parts are interpreted in class, and this work is supplemented by collateral reading in Faust literature. Conducted in English. *Throughout the year; Tu., Th., at* 11. Alternates with course 31. (Omitted in 1909–10.) Professor HOHLFELD.

31. General History of German Literature. English lectures and readings in representative works of German literature. Attention will be given to the parallel movements of English and French literature. *Throughout the year; Tu., Th., at* 11. Alternates with course 30. Professor HOHLFELD.

32. Lessing. A critical study of his life and works, with special reference to his attitude towards English literature. *First semester; twice a week.* Alternates with course 34. Dr. HAERTEL.

34. Lyric Poetry of the Nineteenth Century. Special attention will be given to the study of rhythm and meter. *Throughout the year; twice a week.* Alternates with course 32. (Omitted in 1909–10.) Mr. BRUNS.

35. The Novel of the Nineteenth Century. Special attention will be given to the general aspects of German life and thought in as far as they find expression in the novel. *Throughout the year; twice a week.* Alternates with course 43. Assistant Professor GOODNIGHT.

36. Popular German Literature. *Volkslied, Märchenliteratur,* and *Volksbücher (first semester);* modern dialect literature *(second semester). Throughout the year; Tu., Th., at* 10. Alternates with course 37. (Omitted in 1909–10.) Assistant Professor ROEDDER.

37. Schiller. A study and discussion of his dramas, dramatic fragments, philosophical writings, and correspondence.

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Throughout the year; twice a week. Alternates with course 36. Assistant Professor ROEDDER.

38. Shakspere in Germany. The course will trace the introduction of Shakspere into Germany, and the influence of his works upon German literature during the eighteenth century and on the Romantic School. Lectures and assigned readings, and reports. *One semester; twice a week.* Assistant Professor KIND.

For Graduates

40. Herder. A critical study of his life and works, with special reference to his influence on the Storm and Stress movement and on the Romantic School. *First semester; M.*, 2 *to* 4. (Omitted in 1909–10.)

41. The Romantic School in Germany. A systematic study of the literary, philosophic, and cultural tendencies of the early romatic movement. The principal writers studied will be the two Schlegels, Tieck, Novalis, Wackenroder, Fichte, and Schelling. *Second semester; M.*, 2 *to* 4.

42. The Literary Relations of England and Germany in the eighteenth century. The course deals particularly with the influence on German literature of the Spectator, Milton, Young, Ossian, and Ballad Poetry; Pope, Thomson, Defoe, Swift, Richardson, Fielding, Sterne, and Goldsmith. (In 1909–10, the work will be confined chiefly to the development of German literature in the first half of the century.) Lectures, and assigned readings, with papers on special topics. *Throughout the year; twice a week.* Assistant Professor KIND.

43. German Literature in America. An attempt to trace the introduction of German literature, American criticism of it, and its influence on American writers. *Throughout the year; twice a week.* Alternates with course 35. (Omitted in 1909–10.) Assistant Professor GOODNIGHT.

44. History of Middle High German Literature. A study of the literary movements during the period from the twelfth to the end of the fifteenth century, with special reference to German life and culture during the middle ages. Open only to students who have completed course 52 or its equivalent. *Throughout the year; Th.*, 4 *to* 6. Alternates

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with course 46. (Omitted in 1909–10.) Assistant Professor EVANS.

46. History of the German Drama. The development of the German drama up to the time of Lessing, including the liturgical drama, the *Fastnachtspiel*, the *Schuldrama*, the English influence of the seventeenth, and the French influence of the first half of the eighteenth century. *Throughout the year; Th.*, 4 *to* 6. Alternates with course 44. Assistant Professor EVANS.

47. Pro-seminary in German Literature. The object of this course is, through the assignment of definite tasks of limited compass, to prepare graduate students for the more advanced work of the seminary proper. The work will be selected in alternate years from the following subjects:

A. The literature of the seventeenth and of the first half of the eighteenth century. (Omitted in 1909–10.)

B. The classical period of the second half of the eighteenth century.

In both instances, special attention will be given to tracing the development of literary style, meter, and poetic theory. *Throughout the year; M., W., at* 9. Professor HOHLFELD.

48. Seminary in German Literature. The aim of the seminary is to train graduate students in the scientific methods of the historical and critical study of literature. The periods from which subjects are assigned for investigation, form a cycle of three years:

A. Interrelations of English and German literature during the last three centuries.

B. Goethe *(first semester)* and Goethe's Faust *(second semester)*. Given in 1908–09.

C. The German drama since the middle of the eighteenth century. To be given in 1909–10. *Throughout the year; W.*, 4 *to* 6, and a third hour each week for an accompanying course of lectures. Professor HOHLFELD.

For the work of the German Journal Club, see the announcement of the Graduate School.

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GERMAN PHILOLOGY

For Undergraduates and Graduates

50. Historical Survey of German, with special reference to Modern German grammar. Lectures and reading of selected texts to illustrate the historical development of the language. *First semester; M., W., at* 11. Professor Voss.

51. Middle High German. Introductory course. Lectures on the German folk epics and German heroic legends. Study of either the *Nibelungenlied* or *Kudrun*. *Second semester; M., W., at* 11. Professor Voss.

Courses 50 and 51 are required of students who expect to teach German as their principal subject.

52. Advanced Middle High German. Studies in the language and literature of the twelfth and thirteenth centuries. Lectures and critical study of texts. *Tu., Th., at* 10. Professor Voss.

53. General Phonetics. A study of the nature and production of speech sounds in the most important Indo-European languages. *First semester; twice a week.* In alternate years. Assistant Professor PROKOSCH.

54. Gothic Grammar. Readings from the Gospels. *First semester; twice a week.* Alternates with course 58. Assistant Professor ROEDDER.

55. Old High German, with special reference to German life and culture. Braune's *Althochdeutsche Grammatik* and readings from Braune's *Althochdeutsches Lesebuch*. *Second semester; twice a week.* Alternates with course 59. Assistant Professor ROEDDER.

57. Introduction to the Study of *Volkskunde*. Lectures and collateral reading. *First semester; once a week.* In alternate years. (Omitted in 1909–10.) Assistant Professor ROEDDER.

58. Old Saxon, with special reference to Germanic life and culture. Holthausen's *Altsächsisches Elementarbuch* and extracts from the *Heliand*, ed. Behaghel. *First semester; twice a week.* Alternates with course 54. (Omitted in 1909–10.) Assistant Professor ROEDDER.

59. Germanic Mythology and Heroic Legends. Lectures and col-

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lateral reading. *Second semester; twice a week.* Alternates with course 55. (Omitted in 1909–10.) Assistant Professor ROEDDER.

Primarily for Graduates

60. Classical German Philological Literature. Introduction to the history of German philology and to the study of philological methods of research and investigation. *W., at* 9. Professor Voss.

61. Pre-Germanic Grammar. *Throughout the year; twice a week. First semester:* Phonology. *Second semester:* Morphology and Syntax. (Omitted in 1909–10.) Assistant Professor PROKOSCH.

62. Modern German Grammar. A thorough and practical study of the language as spoken and written today, with lectures on the history of the Modern High German literary language. Alternates with course 63. (Omitted in 1909–10.) *M., W., at* 10. Professor Voss.

63. Early Modern High German. Studies in the language and literature of the fifteenth and sixteenth centuries. Lectures and critical study of texts. Alternates with course 62. *M., W., at* 10. Professor Voss.

64. Pro-seminary in German Philology. For 1908–09: Old High German Texts *(first semester);* Old Saxon Texts *(second semester).* For 1909–10: Studies in the Development of German Prose Style. *S., at* 8. Assistant Professor ROEDDER.

65. Philological Seminary. The classical writers of the Middle High German period, and the transition periods from Old to Middle High German, and from Middle to Modern High German. Hartmann von Aue, Gottfried von Strassburg, Wolfram von Eschenbach, *Deutsche Gedichte des XI. und XII. Jahrhunderts*, Reinke de Vos, Meier Helmbrecht, Sebastian Brant, Thomas Murner, Hutten, Luther, Fischart, and Hans Sachs. *Throughout the year; Tu.,* 4 *to* 6. Professor Voss.

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ENGLISH

PROFESSORS CUNLIFFE, FREEMAN, HUBBARD; ASSOCIATE PROFESSOR LATHROP; ASSISTANT PROFESSORS BEATTY, CAIRNS, DICKINSON, DODGE, PYRE, YOUNG; MISS ASHMUN, MISS BERKELEY, MR. COOK, DR. ELLIOTT, DR. LEONARD, MR. NEIDIG, MR. NORTHROP, MR. ROE, AND DR. WOOLLEY; MR. HALL, MISS STREET, MR. WATT.

The courses of the department are intended to serve five main purposes: (1) to train students in the use of English as a means of expression and communication for the ordinary demands of social, commercial and professional life; (2) to continue that training to suit the special needs of those who intend to take up journalistic or literary work; (3) to develop the literary sympathy and appreciation and to extend the knowledge of those who find in English and American literature the readiest means of obtaining the advantages of a liberal education; (4) to prepare teachers of English for school and college work; (5) to fit students for and assist them in scholarly investigation. Most of the courses will be found to meet all these needs, directly or indirectly, but some are especially directed to one or two in particular. Every student will be encouraged to select the courses most suited to his or her own needs, but certain courses are prescribed as necessary for due equipment in particular lines of work.

Undergraduate Courses

All students in the colleges of Letters and Science, Engineering, and Agriculture are required to take Freshman English.

The General Survey is regarded as a necessary preliminary to the other literature courses, and should therefore be taken in the sophomore year by those who think of making English their major study in the junior or senior years; this course (30) is also recommended for those who desire a general knowledge of English literature, but are unable to carry their study of the subject further.

Students taking English as an elective outside of the major study are advised to select courses mainly from the undergraduate group. Those who make English their major study, after providing for the required courses, may choose at will from this

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or the following group (for undergraduates and graduates); and duly qualified seniors are admitted to the courses primarily for graduates at the discretion of the professor in charge of each course.

English as a Major Study

Students intending to choose English as their major study are strongly recommended to take General Survey (30) in their sophomore year.

At the beginning of their junior year, they should consult the head of the department, who will assign them to an adviser for help in the choice of courses and general direction of their studies. They are required to take, in addition to the thesis, twenty-four hours as a minimum, exclusive of course 1 (required of all students). Course 30 must be included. A total of thirty-six hours, in addition to the thesis and course 1, may be taken. No courses in public speaking except 5 and 11 may be taken as part of the major work in English.

Students who are not candidates for the teachers certificate are free to choose any courses they wish after satisfying the requirements of Freshman English and General Survey.

For Teachers

Candidates for the teachers certificate choosing English as their major are required to take, in addition to the thesis, twenty-four hours as a minimum, exclusive of course 1 (required of all students). Courses 30, 20a and 50 (*a* and *b*) must be included. A total of thirty-six hours, in addition to the thesis and course 1, may be taken.

Those choosing English as their minor are required to take, in addition to course 1 (required of all students), courses 30, 50a, 2, or 6 (first semester), and one of the following groups: (a) 34 and 35; (b) 36 or 36a; (c) 40.

Major of Candidates for Ph. B.

Candidates for the degree of Ph. B. choosing English as their major subject are required to take twenty hours, including the thesis, provided that they have taken courses equivalent to 1 and 30. If such equivalent courses have not been taken, 1 and 30 must be taken in addition to the twenty hours.

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Before entering the courses on the Teaching of English (50 *a* and *b*) students should review English grammar and the principles of rhetoric and make themselves familiar with the following selections:—For 50a Arnold's *Sohrab and Rustum;* Bunyan's *The Pilgrim's Progress*, Part I; Burroughs' *Birds and Bees, Sharp Eyes, A Bunch of Herbs*, etc.; Coleridge's *Ancient Mariner;* Cooper's *Last of the Mohicans;* Dickens' *Christmas Carol;* George Eliot's *Silas Marner;* Goldsmith's *The Deserted Village;* Hawthorne's *Twice Told Tales;* Irving's *Alhambra, Sketch Book;* Macaulay's *Lays of Ancient Rome;* Scott's *Ivanhoe;* Shakspere's *Julius Caesar, The Merchant of Venice;* Thoreau's *Succession of Forest Trees;* Stevenson's *Treasure Island;* Warner's *A-Hunting of the Deer;* Webster's *First Bunker Hill Oration.*

For 50b (in addition to list for 50a):—Addison's *De Coverley Papers;* Addison and Steele's *Spectator* (Selected essays); Burke's *Conciliation with America;* Browning's Shorter Poems (selected); Carlyle's *Essay on Burns;* Emerson's Essays (selected); Franklin's *Autobiography;* Mrs. Gaskell's *Cranford;* Goldsmith's *Vicar of Wakefield;* Hawthorne's *House of the Seven Gables;* Irving's *Life of Goldsmith;* Lowell's *Vision of Sir Launfal;* Macaulay's *Life of Johnson, Lord Clive;* Poe's Poems (selected), *Gold Bug and Other Stories;* Shakspere's *Macbeth, As You Like It;* Tennyson's *Gareth and Lynette, Lancelot and Elaine, The Passing of Arthur;* Washington's *Farewell Address.*

Preparation for Journalism

As the study of English is an important part of training for journalism, students preparing themselves for this profession may find it to their advantage to take English as their major. For students taking English as a major in preparation for journalism the only required courses are 1 and 30; a maximum of ten units for professional courses in journalism may be credited towards the major. Other English courses considered advantageous for journalistic work are those in composition (1, 2, 3, 6); American literature (40, 47), Nineteenth Century literature (34, 35), English drama (36, 36a, 52), and the novel (39). The technical instruction given in the courses in journalism includes (a) theory and practice of journalistic methods, (b) history and development of the American press, and (c) organization and management of a modern newspaper; together with a

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series of special lectures on various phases of journalistic work, given by newspaper men in active service. The students in the classes in journalism edit the Daily Cardinal as a part of their practical work. For detailed information as to the courses in preparation for journalism see Index under Journalism and a special bulletin for 1909–10 entitled Courses Preparatory to Journalism.

Library Work

English literature is an important part of the sound general education which forms the best foundation for success in library work, and its relation to the more specific needs of the profession is obvious. Students who take the joint course arranged at the University and the State Library School may therefore find it to their advantage to choose English as their major study. Of the twenty hours of library work for which credit is given by the University four may be counted towards an English major, if the candidate so desires, reducing the minimum departmental requirement to thirty hours. In addition to courses 1 and 30, which are required of all, library students are recommended to select courses of a more general character from the group primarily for undergraduates, especially 34, 35, 36, 52, 39, and 40. For detailed information in regard to preparation for library work, see Index under Library Training and a special bulletin entitled Courses in Library Training.

RHETORIC AND COMPOSITION

For Undergraduates

1.* Freshman English. English prose style. Composition. The elements of effective writing in prose, based upon direct study of selected authors, with training in composition. *Throughout the year; three hours a week. Twenty-eight sections. For hours and rooms see time table of required studies.* Required of all freshmen in the colleges of Letters and Science, Agriculture, and Engineering. Professor HUBBARD; Associate Professor LATHROP; Assistant Professors BEATTY, CAIRNS, DICKINSON, DODGE, YOUNG; Miss ASHMUN, Miss BERKELEY, Mr. COOK, Dr. ELLIOTT, Dr. LEONARD,

*On the completion of course 1, a provisional pass mark is given; if at any time, later in his course, a student is reported deficient or careless in English composition, he may be required to take additional work in that subject.

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Mr. NEIDIG, Mr. ROE, Dr. WOOLEY; Mr. HALL, Miss STREET, Mr. WATT.

2. Sophomore Composition. Elective for students who have finished the required English for the freshman year. *Throughout the year; Tu., Th., at* 8 *and* 11. Assistant Professor DICKINSON and Miss BERKELEY.

3. Technical Writing. This course is designed to meet the requirements of those students who, while specializing in technical or scientific studies, desire training in composition to aid in the writing of theses and special reports. The work is carried on by means of lectures, class exercises, and frequent conferences. *Throughout the year; Tu., Th., at* 12. Assistant Professor DICKINSON.

6. Advanced Composition. Elective for juniors and seniors, and for sophomores who have done very good work in course 1. *Throughout the year; Tu., Th., at* 11. *Three unit-hours.* Assistant Professor DODGE.

ENGLISH LANGUAGE

Primarily for Undergraduates

20a. Anglo-Saxon. This course is designed to furnish a basis for the more advanced study of English philology, and to give an introduction to the history of the English language. Required for the teacher's certificate (English major). *First semester; M., W., F., at* 9. Professor HUBBARD.

20b. Middle English. A continuation of course 20a. The historical development of English is traced, and the general principles of linguistic science are illustrated. *Second semester; M., W., F., at* 9. Professor HUBBARD.

Primarily for Graduates

22. Beowulf. The whole poem is read critically; its relation to the literature of other Germanic languages is considered. As far as possible the course is made to serve as an introduction to the study of old Germanic life. Open to seniors. *First semester; M., W., F., at* 8. Professor HUBBARD.

21. Anglo-Saxon Poetry. A continuation of course 22. Especial attention is given to the lyric and epic poems that are least affected by Christianity. *Second semester; M., W., F., at* 8. Professor HUBBARD.

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24. English Philology Seminary. Critical study of texts; historical grammar; dialects. The work is varied from year to year. A course in Anglo-Saxon grammar with special reference to Germanic relations is given at least once in three years; this is designed to meet the needs of students of German as well as students of English. In other years courses are given in which the critical study of some Anglo-Saxon or Middle English text is pursued. *Throughout the year; two hours a week.* Professor HUBBARD.

ENGLISH LITERATURE

Primarily for Undergraduates

30. General Survey of English Literature. This course consists of two parts: (1) lectures on the history of English literature from the earliest times to the middle of the nineteenth century; and (2) a careful study in small tutorial groups of the works of representative authors of each period. As an introduction to the study of English literature, this course is prerequisite to all other courses in English. It is required of sophomores taking English as their major, and is recommended to students desiring a single course in English literature.

Section 1, *M., W., F., at* 8. Assistant Professor DICKINSON.
Section 2, *M., W., F., at* 9. Assistant Professor PYRE.
Section 3, *M., W., F., at* 10. Assistant Professor YOUNG.

Particulars as to the assignment of students to tutorial groups for reading and study in course 30 will be found in the English Department circular.

34. The Romantic Movement. Lectures and collateral reading upon the earlier phases of the movement from Thomson to Blake are followed by particular study of representative poetical works of Coleridge, Wordsworth, Byron, Shelley, and Keats. *First semester; M., W., F., at* 10. Assistant Professor PYRE.

35. The Victorian Era. This course is a continuation of 34, and is similar in method, with a somewhat larger share of attention to the prose of the period. The works for particular study are those of Carlyle, Ruskin, Newman, Tennyson,

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Browning, Rossetti, Arnold, and Morris. *Second semester; M., W., F., at* 10. Assistant Professor PYRE.

36. The Drama. Shakspere. A part of the first semester is devoted to the history of the development of the drama, the remainder of the year to Shakspere. All the thirty-seven plays are read, while more specific attention is given to a part of his work by a detailed study of certain plays representative of the different periods of his dramatic career. *Throughout the year; M., W., F., at* 11. Professor FREEMAN.

36a. Shakspere. A short review of the political, social, and literary conditions of the Elizabethan age is followed by a careful study of the following plays: *A Midsummer Night's Dream, Romeo and Juliet, The Merchant of Venice, Henry V, As You Like It, Twelfth Night, Hamlet, Othello, King Lear, Macbeth, The Tempest. Throughout the year; M., W., F., at* 11. Professor CUNLIFFE.

52. Modern Drama. A survey of English dramatic literature from the Restoration to the present time. Lectures, collateral reading, and analysis of plays. *Throughout the year; Tu., Th., at* 11. Assistant Professor PYRE.

37. Epic Poetry. Lectures on the characteristics and varieties of epic poetry, and on the principal world epics. Collateral reading and papers. *Throughout the year; Tu., Th., at* 10. Alternates with course 38. (Omitted in 1909–10.) Professor FREEMAN.

38. English Lyric Poetry. A study of the best lyrical poems from the time of Wyatt and Surrey to that of Tennyson. *Throughout the year; M., W., F., at* 10. Alternates with course 37. Professor FREEMAN.

39. The Novel. During the first semester the English novel of the eighteenth century is the subject of the course. Attention is given to the influence of Spanish and French upon English fiction and of English upon French and German fiction. Novels by the most important English authors of the eighteenth century are read, and the attempt is made to determine the contribution of each writer to his art. Thackeray, and George Eliot are studied. The first semester may be taken without the second, but not the second without being preceded by the first. *Throughout the year; Tu., Th., at* 10. Associate Professor LATHROP.

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40. American Literature. A general survey of literary writings in America. One hour a week will be devoted to lectures; during the second hour the class will meet in smaller groups for the study of selections from the works of representative authors. The course should be preceded or accompanied by course 30. *Throughout the year; Tu., Th., at* 9 *and at* 10. Assistant Professor CAIRNS.

50a. The Teaching of English. This course presents the aims, methods and organization of the English work for the first two years in high school, with special emphasis on the teaching of composition; it includes practice work in the correction of themes. *First semester; Tu., Th., at* 12. Mr. BASSETT.

50b. The Teaching of English (Continuation of 50a). This course deals with the work of the third and fourth years, with special emphasis on the teaching of literature; it includes a study of the classics used in high school reading. *Second semester; Tu., Th., at* 12. Mr. BASSETT.

Observation of teaching in the high school is required in each course. 50a and 50b are required of all candidates for the teachers certificate (English major); 50b or an advanced composition course is required of all candidates for the minor teachers certificate in English. Students who intend to teach English literature are advised to take both 50a and 50b.

For Undergraduates and Graduates

31. Chaucer. After an introductory study of Chaucer's language and grammar, as many of the *Canterbury Tales* are read as time allows. The *Parliament of Foules* and the Prologue to the *Legend of Good Women* are also read. *Second semester; M., W., F., at* 12. Professor HUBBARD.

42. Versification. The student is presented with a working theory, after which the course proceeds with the history of English verse forms and the analysis of particular compositions. *Second semester; Th.,* 2 *to* 4. Assistant Professor PYRE.

43. Tennyson. The development of Tennyson as a literary artist as seen in his vocabulary, verse-form, and subject-matter. *Throughout the year; Tu., Th., at* 10. (Omitted in 1909–10.) Assistant Professor BEATTY.

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45. Browning. This course aims at explaining Browning's relation to the poetic development of the nineteenth century, his characteristic methods, his outlook on the life and thought of his time, and his view of the art of poetry. *First semester; Tu., Th., at* 11. Professor CUNLIFFE.

46a. The Ballad. A study of the English and Scottish popular ballads in connection with their European and other analogues in popular ballad and tale. The results obtained will be applied to the problem of the origins of poetry. *First semester; Tu., Th., at* 9. Assistant Professor BEATTY.

46b. Literary Criticism. In 1909–10 the subject will be English literary criticism of the nineteenth century, its origins and development. Coleridge, Hazlitt, and Arnold will be centres of study. *Second semester; Tu., Th., at* 9. Assistant Professor BEATTY.

47. Significant Movements in American Literature. Different aspects of the development of American literature are taken up for detailed consideration. In 1908–09 the subject for the first semester was Poe; for the second semester, Hawthorne and related prose writers. In 1909–10 the subject will be the development of the short story in America. Open to graduates, and to undergraduates who have completed course 40 or its equivalent. *Throughout the year; W.,* 2 *to* 4. Assistant Professor CAIRNS.

48. Classical and Bibliographical Translations of the Elizabethan Era. After an introduction giving a summary view of the nature and the importance in literary history of the translations into English from Greek and Latin, beginning with Surrey's *Virgil* and ending with Chapman's *Homer*, this course takes up the study of the English Bible and of its influence on the language and literature of England. *Throughout the year; Tu., Th., at* 9. Associate Professor LATHROP.

Primarily for Graduates

49. English Religious and Didactic Drama. History of English drama from the beginnings to the entrance of the Renaissance into English literature. A detailed study, in lectures and assigned reading, of English mystery plays, moralities, and "interludes," with a consideration of their relations to

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preceding liturgical drama and to Continental literatures. *Second semester; M., F., at* 2. Assistant Professor YOUNG.

51. Predecessors of Shakspere. History of the development of the English drama up to Shakspere, with special consideration of the elements contributed by the classical drama, the miracles and moral plays, foreign influences, and the work of Lyly, Marlowe, Greene, and Kyd. *Throughout the year; Tu., Th., at* 10. (Omitted in 1909–10.) Professor CUNLIFFE.

53. Shaksperean Criticism. History of Shaksperean criticism, textual and aesthetic, from its beginnings to the present time. Students will be directed to make themselves acquainted with the methods and results of modern scholarship. *First semester; Tu., Th., at* 9. (Omitted in 1909–10.) Professor CUNLIFFE.

55. Shakspere's Later Contemporaries. The English Drama from Ben Jonson to The Closing of the Theatres. The dramatic history of this period will be studied, mainly through the examination of typical plays with reference to their source and aim, and to social and theatrical conditions. *Throughout the year; Tu., Th., at* 12. (Omitted in 1909–10.) Assistant Professor PYRE.

56. Sixteenth Century Prose. A survey of the chief prose writers of the period and their chief works, with some attention to intellectual and social conditions and to varieties of prose style. *First semester; Tu., Th., at* 9. (Omitted in 1909–10.) Assistant Professor DODGE.

57. Milton. Students will be expected to read all of Milton's poetry and some of his important works in prose. The course is designed to give them as thorough an acquaintance as possible with his work as a whole. *Second semester; Tu., Th., at* 9. (Omitted in 1909–10.) Assistant Professor DODGE.

58. English Poetry from Dryden to Cowper. *First semester; two hours.* Alternates with course 56. Associate Professor LATHROP.

59. English Prose from Dryden to Burke. *Second semester; two hours.* Alternates with course 57. Associate Professor LATHROP.

44. English Literature Seminary. The subject varies from

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year to year. The subject for 1904–5 was Dryden; for 1906–7, the Romantic Movement; for 1907–8, the Elizabethan stage; for 1908–9, Elizabethan non-dramatic poetry. The subject for 1909–10 will be Chaucer. *Throughout the year; Tu., 4 to 6.* Professors CUNLIFFE, FREEMAN, HUBBARD; and Assistant Professor YOUNG.

JOURNALISM

ASSISTANT PROFESSOR BLEYER.

The courses in journalism are designed to familiarize the student with the methods of practical journalism, the history and development of the American press, and the organization and management of the modern newspaper and magazine; and to give practical training in newspaper and magazine editing and writing. Students in these courses edit the Daily Cardinal, the official university newspaper, as a part of their training. In connection with the courses in journalism is given each year a series of special lectures by newspaper and magazine editors on various phases of journalistic work.

Instruction is given by the department of political science, in the law of the press, including the law of copyright, libel, and other topics relating to the publication of magazines and newspapers. A special course in current political topics and their effective literary presentation is also given by the department of political science for the students in journalism. In the College of Agriculture are given courses in agricultural journalism.

It is proposed to establish an alumni fellowship in journalism valued at $400, in connection with the Alumni Magazine, the holder of the fellowship to be a graduate of the Courses Preparatory to Journalism.

1. Elements of Newspaper Writing. Practical talks on the work of the newspaper reporter, with criticism of the work done by the members of the class on the Daily Cardinal. Open to freshmen. Designed for candidates for positions as reporters on the Daily Cardinal. *Throughout the year; one hour a week.* No credit. Assistant Professor BLEYER.

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2. Newspaper Reporting and Correspondence. Lectures and practice in all the details of the work of the reporter and correspondent including news gathering and newspaper writing. Open to students who have completed Freshman English or the equivalent. *Throughout the year; M., W., F., at* 10. Assistant Professor BLEYER.
3. Newspaper Editing. Instruction and practice in editing copy, correcting proof, writing headlines, making up, and other details of editing, and in the organization and methods of local, state, and national news gathering. Open to students who have had Journalism 2 or equivalent practice. *Throughout the year; Tu., Th., at* 10. Assistant Professor BLEYER.
4. Editorial Writing. Theory and practice of editorial writing. Open to students who have had considerable practice in writing. *First semester; Tu., Th., at* 9. Assistant Professor BLEYER.
5. Special Feature and Magazine Work. Instruction and practice in preparing special articles for newspaper and magazine publication. Open to students who have had considerable practice in writing. *Second semester; Tu., Th., at* 9. Assistant Professor BLEYER.

Current Political Topics (Political Science, 32). A study of current political problems, with training in the discriminating use of sources and in effective literary presentation. A training course designed for students preparing for journalism. Open to seniors and graduate students. *Throughout the year; Tu., Th.*, at 10. Mr. HORNBECK.

The Law of the Press (Political Science, 26). The law of copyright, literary property, libel, privileged publication, and other topics relating to the publication of books and newspapers. Designed especially for students preparing for journalism. *Second semester; Tu., at* 3. Associate Professor SCOTT.

Agricultural Journalism. A course designed to meet the needs of those students who wish to study the agricultural press in order to become contributors or editors, is given in the College of Agriculture (See Index, under Agricultural Journalism).

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COMPARATIVE LITERATURE

COMMITTEE IN CHARGE: PROFESSOR OLSON; ASSOCIATE PROFESSORS GIESE, SHOWERMAN; ASSISTANT PROFESSORS DODGE, (Chairman) AND KIND.

For Undergraduates

Comparative Literature, 1. Ancient Classical Epic. Its origin and development. Homer's *Iliad* and *Odyssey* read and carefully studied; Virgil's *Aeneid* studied carefully in its relations with the *Iliad* and the *Odyssey*. The reading is in translations. *First semester; Tu., Th., at* 12. (Given in 1909–10.) Professor C. F. SMITH.

Comparative Literature 2. Renaissance Epic from Dante to Milton. The poems studied are the *Divine Comedy*, the *Orlando Furioso*, the *Jerusalem Delivered*, the *Faery Queen*, and *Paradise Lost*. The course aims to give a clear general understanding of each. The first three are read in translations. *Second semester; Tu., Th., at* 9. (Given in 1909–10.) Assistant Professor DODGE.

Comparative Literature 3. Ancient Classical Drama. The reading will be in translations. *First semester; two hours a week.* (Given in 1910–11.)

Comparative Literature 4. Modern Classical Drama. The reading of foreign drama will be in translations. *Second semester; two hours a week.* (Given in 1910–11.)

For Graduates

Comparative Literature 15. Introduction to Medieval Drama. The ecclesiastical origins of medieval drama. The liturgical system of the medieval church and each manifestation of liturgical drama within this system will be studied in detail. The course is designed as a preparation for the study of medieval drama in the vernaculars of Western Europe. *First semester; M., at* 2. (Given in 1909–10.) Assistant Professor YOUNG.

German 46. Medieval Drama in Germany. The course traces the development of the drama in Germany up to the Renaissance, including the *Fastnachtspiele*. *First semes-*

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ter; Th., 4 *to* 6. For the continuation in the second semester see the departmental announcement. Assistant Professor EVANS.

French 52. Medieval French Drama. *Second semester; F.*, 2 *to* 4. (Given in 1909–10.) Professor H. A. SMITH.

English 49. English Religious and Didactic Drama. History of English drama from the beginnings to the entrance of the Renaissance. A detailed study, in lectures and assigned reading, of English mystery plays, moralities, and "interludes," with a consideration of their relations to preceding liturgical drama and to Continental literatures. *Second semester; M., F., at* 2. (Given in 1909–10.) Assistant Professor YOUNG.

Latin 18. Roman Satire from Ennius to Juvenal. A study by lectures and assigned readings of the origin and development of formal literary satire among the Romans, with special reference to the works of Lucilius, Horace, Persius, and Juvenal. *First semester; Th.*, 4 *to* 6. Associate Professor FISKE.

Comparative Literature 16. Modern Classical Satire in Italian, French and English. From the beginnings in the sixteenth century to the close of the eighteenth. No student will be admitted to the course who does not read French with facility. (Given in 1909–10.) *Second semester; M., W., at* 4. Assistant Professor DODGE.

Comparative Literature 17. French and Italian influences in English poetry in the second half of the sixteenth century. *Throughout the year; two hours a week.* (Given in 1910–11.) Assistant Professor DODGE.

For description of the courses which follow, the student is referred to the various departmental announcements.

French 26. The Novel in Romance Countries. Dr. CERF.

French 43. The Cycle of the Crusades. Professor SMITH.

French 48. The Beginning of Medieval Literature. Assistant Professor REED.

French 50. The Arthurian Epic. Professor SMITH.

German 38. Shakspere in Germany. Assistant Professor KIND.

German 42. The Literary Relations of England and Germany in the Eighteenth Century. Assistant Professor KIND.

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German 43. German Literature in America. Assistant Professor GOODNIGHT.

English 46a. The Ballad. Assistant Professor BEATTY.

PUBLIC SPEAKING

ASSISTANT PROFESSOR LYMAN, MR. JOHNSTONE, MR. MATHEWS.

The courses in public speaking are designed to give preparation in two general lines of work:—in elocution, interpretative reading, and dramatic presentation; and in the composition and delivery of public addresses. The courses are so arranged as to make possible systematic and progressive study in either branch of public speaking during the sophomore, junior, and senior years. In composition, the elementary course, 5, should precede the specialized courses, 3 and 11b. Course 12 in elocution forms a desirable part of the preparation for all advanced work in public speaking.

The University of Wisconsin participates in several inter-collegiate contests in oratory and debate. For these contests, the courses in public speaking are designed to give preparation. Men desiring to make inter-collegiate debating teams are advised to consider courses 5, 11a, 11b, 13 and 8. Men desiring to enter oratorical contests should consider courses 5, 3, 13. In addition, the University, through its dramatic societies, presents several plays. The department also conducts public recitals. Students who are interested in dramatic presentation, or who wish to become public readers or teachers of English literature should consider courses 12, 14, 16, 17 and 18.

Two of the courses in public speaking, 5 and 11, may be counted toward the English major. Not more than ten hours of public speaking in addition to course 12 can be counted toward the bachelor's degree.

COMPOSITION COURSES

Primarily for Undergraduates

5a. The Composition of Public Addresses. This course deals with the structure and substance of the most important forms of public address. During the first semester the

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argument is studied. Analysis, brief-drawing, evidence, refutation and persuasion. Lectures, analysis of masterpieces, practice in the composition of the various forms, consultations. *First semester; M., W., F., at* 12. Assistant Professor LYMAN and Mr. MATHEWS.

5b. The Composition of Public Addresses. Continuation of 5a. The forms covered are the eulogy, the commemorative address, the after-dinner speech, the legislative address and other forms. This course is fundamental in public speaking and is recommended to sophomores. *Second semester; M., W., F., at* 12. Assistant Professor LYMAN and Mr. MATHEWS.

11a. Argumentative Themes. This course, followed by 11b, is intended as special preparation for argumentation and debate. Training in analysis, brief-drawing, evidence, refutation; study of the principles of conviction, persuasion and rhetorical presentation. Three written arguments with short class themes. *Second semester; Tu., Th., at* 10. Assistant Professor LYMAN.

COURSES INCLUDING DELIVERY

Primarily for Undergraduates

1. Elementary Public Speaking. For freshmen only. The purpose of this course is to promote effective delivery by starting correct habits of breathing, vocalization, ease of presence, and of movement. Short selections will be studied, practiced, and delivered. The main emphasis of the course will be drill in the class room. The course is limited in number. The consent of instructors is required. *No university credit given. Second semester; twice a week. Hours to be arranged.* Assistant Professor LYMAN and Mr. MATHEWS.

3a. Oratorical Delivery. Study of the principles of oral expression for the cultivation of a natural and direct style. Daily practice in speaking. Small sections for voice-training. *First semester; Tu., Th., at* 11. Assistant Professor LYMAN.

3b. Oratorical Delivery. Continuation of course 3a. *Second semester; Tu., Th., at* 4. Assistant Professor LYMAN.

15. Practical Public Speaking. (Elective in the College of

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Law). Daily practice in the presentation of the various forms of public address, voice training, study of gesture, bearing, and the elements of ease, grace, and force in presentation. Designed for upper classmen and students in the College of Law who have taken no courses in elocution, but who wish some general training in public speaking. *First semester; Tu., Th., at* 10. Assistant Professor LYMAN.

11b. Debating. Practical work in brief-drawing, the collection and handling of evidence, and debating. Each student will prepare three debates under the direction of the instructor, construct briefs, and participate in class room debates. In addition each student will speak several times from the floor. Personal consultation with the instructor on thought, composition, and delivery. This course is a critical and practical study of debating. The class is limited in number. The course can be taken only with the consent of the instructor, and is open only to those who have had course 11a or 5. *First semester; hours to be arranged; two unit-hours credit.* Assistant Professor LYMAN and Mr. MATHEWS.

8. Ex-tempore Speaking. Practice in the rapid preparation of speeches on the topics of the day and in the impromptu delivery of the same. Lectures on the short speech and ex-tempore speaking. *Second semester; Tu., Th., at* 12. Assistant Professor LYMAN.

INTERPRETATION

Primarily for Undergraduates

12a. Principles and Practice. Vocal culture, exercises in breathing, position, and gesture. Delivery of short selections. Pantomime, ex-tempore speaking. This course will be divided into sections of twelve to fifteen. *Throughout the year; M., W., F., at* 9 *and* 10. Mr. JOHNSTONE.

12b. Beginning section in the work of 12a. *Second semester; hours to be arranged.* Mr. JOHNSTONE.

16a. Interpretative Reading. To be given in alternate years with course 17. *Katherine and Petruchio, Merchant of Venice,* one modern play, Kipling's verse. *First semester; Tu., Th., at* 11. (Given in 1909–10.) Mr. JOHNSTONE.

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16b. Interpretative Reading. *Twelfth Night, Macbeth,* Browning's verse, and one modern play. *Second semester; Tu., Th., at* 11. (Given in 1909–10.) Mr. JOHNSTONE.

17a. Interpretative Reading. *Much Ado about Nothing, King Lear, Faust,* and *Pillars of Society. First semester; Tu., Th., at* 11. (Omitted in 1909–10.) Mr. JOHNSTONE.

17b. Interpretative Reading. *As You Like It, Hamlet, Blot on the 'Scutcheon,* Bible Dramas. *Second semester; Tu., Th., at* 11. (Omitted in 1909–10.) Mr. JOHNSTONE.

18. Dramatic Seminary. Intended for those who wish to teach English and elocution, or who aspire to platform work. Open only to seniors or graduates who have taken the elementary courses in the department. Lectures on platform art. Principles of interpretative reading demonstrated in practice. Criteria for teaching elocution, rhetoricals, contests and plays. Repertoire. *Throughout the year; W.,* 4 *to* 6. Mr. JOHNSTONE.

MATHEMATICS

PROFESSORS SLICHTER, VANVLECK; ASSOCIATE PROFESSOR MASON; ASSISTANT PROFESSORS DOWLING, SKINNER; DR. ALLEN, DR. BIRKHOFF, MR. CHANEY, MR. GRIMES, MR. KÜSTERMANN, MR. MARCH, MR. SIMPSON, MR. SMITH, DR. UNDERHILL, DR. WOLFF; MR. H'DOUBLER.

The courses in Mathematics are divided into three groups, as follows:—

A. Courses 1 to 7 are planned to give a working knowledge of elementary mathematics. All courses are elective except courses 1 and 7, required of students in the Course in Commerce.

Students who elect the minimum amount of mathematics in fulfillment of requirement "c" (see requirements for degree of Bachelor of Arts), may choose six hours from any of the first six courses, provided courses 3 and 4 are not both chosen.

Students electing mathematics with a view of teaching the subject in the high schools, will be expected to complete at least 20 hours of work inclusive of courses 5 and 6, and the courses that necessarily precede them.

It will be advantageous for all students expecting to elect mathematics to present at least one-half a unit of preparatory

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work in algebra in addition to the two units in mathematics required for entrance.

B. Courses 11 to 23 are designed for students who desire to continue mathematical study, and who have completed the requisite courses in group A.

C. Courses 41 to 62 are intended primarily for graduate students.

Major in Mathematics

The requirements for an undergraduate major in mathematics are, in addition to the thesis, 26 semester hours as a minimum, exclusive of courses 1 to 4 and 7. Courses 5, 6, and 12 must be included.

For Undergraduates

1. Algebra. For students presenting one unit of algebra for entrance; prerequisite to all other courses in mathematics except 2. *Three hours a week for one semester.* Ten sections the first semester and one section the second semester. Assistant Professor SKINNER, Dr. ALLEN, Dr. BIRKHOFF, and Mr. SIMPSON.
2. Trigonometry. Plane trigonometry and logarithms; prerequisite to all other courses in mathematics except 1, 6b, and 7. *Three hours a week for one semester.* Two sections the first semester and seven sections the second semester. Assistant Professor SKINNER, Dr. ALLEN, Dr. BIRKHOFF, and Mr. SIMPSON.
3. Analytic Geometry. Recommended to students presenting one and one-half units of algebra for admission and elective to students who have taken or are taking course 2. *Second semester.* Two sections. Dr. ALLEN and Dr. BIRKHOFF.
4. Analytic Geometry. Elementary course. *Throughout the year;*
   Section 1. *Tu., Th., at* 10. Assistant Professor DOWLING.
   Section 2 *Tu., Th., at* 11. Dr. ALLEN.
5. Calculus. Elementary course. Differentiation and integration of functions with the usual geometric and mechanical applications. Students who intend to specialize in mathe-

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matics or who desire calculus for applications in physics and science are advised, if possible, to take course 5 in the sophomore year. *Throughout the year. Section* 1, *M., W., F., at* 10. Assistant Professor DOWLING. *Section* 2, *M., W., F., at* 11. *First semester*, Professor VAN VLECK, and *second semester*, Assistant Professor SKINNER.

6a. Determinants and Theory of Equations. *First semester; Tu., Th., at* 12. Assistant Professor SKINNER.

6b. Analytic Geometry. A continuation of course 3 or 4, devoted especially to elementary analytic geometry of three dimensions. *Second semester; Tu., Th., at* 12. Assistant Professor DOWLING.

7. Commercial Algebra. Required of students in the Course in Commerce. *Second semester; three hours a week.* Three sections. Dr. ALLEN, Dr. BIRKHOFF, Mr. SIMPSON.

For Undergraduates and Graduates

11. Advanced Calculus. A working course. Partial derivatives, line and multiple integrals, Green's theorem, etc., with their applications to problems in geometry and mechanics. *First semester; M., W., F., at* 9. Assistant Professor SKINNER.

12. Differential Equations, with applications to geometry and mechanics. This course is designed primarily to be a working course for students in mathematics and physics. *Second semester; M., W., F., at* 9. Professor VAN VLECK.

13. Theoretical Mechanics. An elementary course in analytical mechanics. This course may be taken by those who have had analytic geometry and calculus. *Throughout the year; M., W., F., at* 11. Professor SLICHTER.

15. Projective Geometry. Lectures based upon Reye's *Geometrie der Lage. Throughout the year; Tu., Th., at* 11. Assistant Professor DOWLING.

14. Modern Methods in Analytic Geometry. *First semester; M., W., F., at* 9. Assistant Professor DOWLING.

19. Differential Geometry. The application of the differential calculus to the geometry of twisted curves and surfaces. *Second semester in alternate years; M., W., F., at* 8. Assistant Professor SKINNER.

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17. Vector Analysis and Quaternions. An introductory course with applications to important problems in geometry and mechanics. Adapted to the needs of students in physics. *First semester; M., W., F., at* 12. (Omitted in 1908–09.) Assistant Professor SKINNER.
18. Theory of Probabilities. This course is adapted to the needs of students of science and economics. *Second semester; W., F., at* 12. (Omitted in 1909–10.) Professor SLICHTER.
20. Theory of Analytic Functions. This is designed to be an introductory course with special attention to the physical and geometrical aspects of the subject. In alternate years. *Throughout the year; M., W., F., at* 12. (Omitted in 1909–10.) Professor VAN VLECK.
21. Theory of Functions of a Real Variable. A critical study of the theorems necessary to advanced work in analysis, with applications. In alternate years. *Throughout the year; Tu., Th., at* 11. (Omitted in 1908–09.) Associate Professor MASON.
22. The Teaching of Mathematics. A course treating of the content of elementary mathematics and of the problems of the teacher of mathematics in the secondary school. Open to seniors, and to juniors upon the approval of the department. *Second semester; Tu., Th., at* 12. Assistant Professor SKINNER.
23. Survey of Geometry and Algebra. A course beginning with the history of Greek geometry and discussing the development and nature of the leading principles of geometry and algebra. Supplementary to course 22 and designed for prospective teachers of mathematics in the secondary schools. *First semester; M., W., F., at* 12. (Omitted in 1908–09.) Professor VAN VLECK.

For Graduates

The following courses are varied from year to year according to the needs of the students, other courses being introduced.

41. Elliptic Functions. Arranged to give a working knowledge of the functions of Weierstrass and Jacobi. *Throughout the year; Tu., Th., at* 9. (Omitted in 1908–09.) Assistant Professor DOWLING.

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43. Differential Equations. A general course in the theory of ordinary and partial differential equations; preparation in analysis beyond calculus is presupposed. *Throughout the year; M., W., F., at* 9. (Omitted in 1909–10.) Associate Professor MASON.

44. Selected Chapters in Higher Geometry. *Throughout the year; Tu., Th., at* 12. (Omitted in 1909–10.) Assistant Professor DOWLING.

48. Problems in the Theory of Point Sets. Seminary course. *Throughout the year; F.,* 3 *to* 5. Professor VAN VLECK.

49. Partial Differential Equations. *Second semester; M., W., F., at* 12. (Omitted in 1908–09) Professor VAN VLECK.

50. Theoretical Hydrodynamics. The theory of ordinary and of vortex motion of fluids, followed by a study of theory of waves in liquids. *Throughout the year; Tu., Th., at* 11, *and a third hour to be determined.* (Omitted in 1909–10.) Professor SLICHTER.

51. Theory of Potential and Harmonic Functions, inclusive of a study of Fourier's Series. *Throughout the year; Tu., Th., at* 11 *and a third hour to be determined.* (Omitted in 1909–10.) Professor SLICHTER.

52. Advanced Dynamics of rigid, fluid, and elastic bodies. Theory of waves. *Throughout the year; M., W., F., at* 11. Associate Professor MASON.

60. Invariants and Covariants. The theory is developed with its applications in algebra and geometry. *Throughout the year; Tu., Th., at* 9. (Omitted in 1909–10.) Assistant Professor SKINNER.

61. Theory of Functional Equations. *Throughout the year; Tu., Th., at* 12, *and a third hour to be determined.* Professor VAN VLECK.

62. Differential Invariants. An introduction to the theory of differential invariants and parameters, with applications to important problems in geometry and mechanics. *Throughout the year; Tu., Th., at* 9. (Omitted in 1908–09.) Assistant Professor SKINNER.

MATHEMATICAL CLUB.—For instructors, graduates, and seniors making mathematics their major. The object of the club will be to follow important recent developments in mathematics, whether in periodical literature, memoirs, books, or theses.

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CHEMISTRY

EMERITUS PROFESSOR DANIELLS; PROFESSORS KAHLENBERG, KREMERS, LENHER; ASSISTANT PROFESSORS FISCHER, KOELKER, WALTON; DR. HALL, MR. KRAUSKOPF, MR. MCDANIEL, DR. MATHEWS, MR. MOTT, MR. AUGSPURGER, MR. BREWER, MR. DEMING, MR. DIEMER, MR. DUMEZ, MR. DUNLEVY, MR. GATES, MR. E. B. HALL, MR. HILL, MR. KLEIN, MR. KOCH, MR. MCBRIDE, MR. SCHULZ, MR. WILCOX.

Primarily for Undergraduates

1. General Chemistry. A general introductory course consisting of three experimental lectures, one recitation and three two-hour periods of laboratory work per week throughout the year. In the first semester the work consists of the chemistry of the non-metals, while the second semester is devoted to the metals and qualitative analysis. *Lectures M., W., F., at* 10. Professor KAHLENBERG; Assistant Professor WALTON, and assistants.
2. General Chemistry for Freshmen in the College of Engineering. Two experimental lectures and two two-hour laboratory periods per week throughout the year. *Lectures Tu., Th., at* 10. Professor KAHLENBERG; Assistant Professor WALTON, and assistants.
3. General Chemistry for Students in Pharmacy. Three experimental lectures, two recitations and twelve hours of laboratory work per week throughout the year. The first semester is devoted to the chemistry of the non-metals and to inorganic preparations, while in the second semester the work consists of qualitative analysis. *Lectures M., W., F., at* 10. Professor KAHLENBERG; Assistant Professor WALTON and Mr. DUMEZ.
4. Thesis. Work for the baccalaureate thesis may be elected in any branch of chemistry in which the student has sufficient preparation. Not later than the beginning of the senior year the work should be arranged with the professor under whom it has been elected. *Throughout the year. Credit two unit-hours per semester.*
5. The Teaching of Chemistry. A course considering both the matter to be presented and the methods of teaching to be

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adopted in a high school course of chemistry. The prerequisites for the course are course 1, the first semester of course 20, and five unit-hours work in course 11; the latter may be taken during the same semester as this course. Two unit-hours credit toward the University Teachers Certificates will be allowed students who have completed this course. *Two lectures or recitations per week during the second semester.* Assistant Professor WALTON.

6. Advanced Inorganic Chemistry. Required of students in Pharmacy. Course 3 is a prerequisite. *Full study during the first semester. Lectures and recitations, Tu., Th., F., at* 10. Professor KREMERS and Mr. SCHULZ.

11. Quantitative Analysis. Introductory laboratory course accompanied by weekly lectures. *Throughout the year.* Professor LENHER; Dr. HALL, and Mr. MOTT.

18. Alkaloid Assay. One hour required of students in the pharmacy course during second semester. Additional work may be elected upon consultation. Assistant Professor FISCHER.

20. Organic Chemistry. Lectures and Laboratory work. *Full study throughout the year.* In the first semester the work will be chiefly on the aliphatic, and in the second semester on the aromatic compounds. *Lectures Tu., Th., at* 8, *and six hours laboratory work per week.* Assistant Professor KOELKER and Mr. MCDANIEL.

20b. Organic Chemistry for students in Pharmacy. Two-hour course. Recitations and laboratory work consisting largely in the preparation of the simpler organic chemicals used in medicine. Assistant Professor KOELKER and Mr. DUMEZ.

27. Advanced Organic Chemistry. Required of students in Pharmacy. *Full study during the second semester. Tu., Th., F., at* 10. Professor KREMERS and Mr. SCHULZ.

40. Plant Chemistry. A three hour study supplementary to Pharmacognosy (Botany 22). *Recitation, M., at* 10. Professor KREMERS and Mr. SCHULZ.

50. Assaying. A course in practical assaying. *Second semester; hours to be arranged.* Professor LENHER and Mr. MOTT.

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For Undergraduates and Graduates

7. History of Chemistry. A general survey of the history of the development of modern chemistry. *Two lectures or recitations per week during the first semester.* Professor KREMERS.

12. Quantitative Analysis. An advanced laboratory course, being a continuation of course 11 which must precede it. Professor LENHER.

13. Gas Analysis. A laboratory course in practical gas analysis. *First semester.* Dr. HALL.

14. Water Analysis. A laboratory course in the analysis of water and sewage. *First semester.* Dr. HALL.

15. Electrochemical Analysis. A study of the application of the electric current to chemical analysis. *First semester.* Dr. HALL.

16. Industrial Analysis. A laboratory course in the proximate analysis of commercial products. *Second semester.* Dr. HALL.

17. Chemical Preparations. Laboratory course in the preparation of typical inorganic compounds. *At least two periods a week.* Professor LENHER.

19. Proximate Organic Analysis. A course in the proximate analysis of various important commercial and technical organic products. *Three unit-hours study for the first semester.* Assistant Professor FISCHER.

21. Preparation of Organic Compounds. This course may be taken as a continuation of course 20. The work will consist of the preparation of typical compounds of a more advanced nature. Assistant Professor KOELKER and Mr. McDANIEL.

23. Seminary in Organic Chemistry. Advanced students meet weekly to report on assigned topics relating to researches in organic chemistry. Assistant Professor KOELKER.

24. Advanced Organic Chemistry. One lecture a week throughout the year on selected topics. Assistant Professor KOELKER.

28. Chemistry of Alkaloids. General survey course of the chemistry of alkaloids. *One lecture a week during the second semester.* Assistant Professor FISCHER.

29. Chemistry of the Volatile Oils, including their botanical re-

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lation and assay. *Work arranged upon consultation with the instructor.* Professor KREMERS.

30. Physical Chemistry. Lectures and recitations supplemented by laboratory exercises in physico-chemical measurements. Must be preceded by chemistry 1. *Full study throughout the year. Lectures and recitations. M., W., at* 8. Professor KAHLENBERG and Dr. MATHEWS.

31. Electrochemistry. Lectures and recitations twice a week. Laboratory work in electrochemical measurements supplements the lectures, and with them makes a full study. *First semester; lectures: Tu., F., at* 8; *laboratory work throughout the year.* Dr. MATHEWS.

32. Thermal Chemistry. Lectures and assigned readings dealing with the thermal phenomena accompanying chemical and physical change. *Second semester; lectures: Tu., at* 8; *and one three-hour laboratory period a week.* Dr. MATHEWS.

41. Plant Chemistry. Supplementary to plant physiology. *Three to five units either semester, or throughout the year.* Professor KREMERS.

46. Chemistry of Foods and their Adulterations. Prerequisites are course 1, General Chemistry, and one semester's work each in quantitative analysis, and organic chemistry. A *five unit-hour course during the second semester.* Assistant Professor FISCHER.

Primarily for Graduates

22. Research Work in Organic Chemistry. Students desiring to become acquainted with the methods of research in organic chemistry may take work leading to theses for higher degrees. Assistant Professor KOELKER.

34. Chemical Equilibrium. The subject treated during the first semester is the Phase Rule. The second semester will be devoted to the study of Chemical Dynamics. *One lecture or recitation a week throughout the year.* Assistant Professor WALTON.

35. Advanced Physical Chemistry. Lectures on selected topics. *Second semester; F., at* 8. Dr. MATHEWS.

36. Advanced Electrochemistry. A course in the preparation of

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chemical compounds by means of electrolysis. *Throughout the year; hours to be arranged.* Professor KAHLENBERG and Dr. MATHEWS.

37. Research Work in General or Physical Chemistry. Students having sufficient training may take up research work in general or physical chemistry, for which every facility is furnished. This course is especially designed for graduates seeking higher degrees. *Full study throughout the year; hours to be arranged.* Professor KAHLENBERG.

38. Seminary in General and Physical Chemistry. Original articles of importance will be studied in detail, with a view to broaden and deepen the understanding and to act as a stimulus to further research. *At least once a week throughout the year.* Professor KAHLENBERG and Assistant Professor WALTON.

42. Research work on alkaloids and the chemistry of foods. *Hours to be arranged upon consultation.* Assistant Professor FISCHER.

43. Research work on volatile oils or other subjects of organic chemistry, with special reference to plant chemistry. *Hours to be arranged upon consultation.* Professor KREMERS.

44. Seminary in Plant Chemistry. The seminary will meet every other Wednesday at 4, for the discussion of topics of organic chemistry, with special reference to plant chemistry. Professor KREMERS.

51. Advanced Inorganic Chemistry. A course of lectures in which special attention is given to the discussion of modern theories of chemistry. *Lectures, Tu., Th., at* 11. Professor LENHER.

52. Inorganic Preparations. This course is preliminary for those intending to pursue research work in inorganic chemistry. *Laboratory work with one lecture or conference a week.* Professor LENHER.

53. Research Work in Inorganic Chemistry. Full facilities are offered to those desiring to study systematically some of the more important problems in inorganic chemistry. Professor LENHER.

54. Seminary in Inorganic Chemistry. Special topics in inorganic chemistry will be studied, reference being con-

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stantly made to the original published matter. Professor LENHER.

55. Mineral Analysis. In 1910–11, a course of lectures for graduate students will be given on the methods used in the analysis of minerals. *Two lectures a week throughout the year.* Professor LENHER.

PHYSICS

PROFESSORS MENDENHALL, SNOW; ASSOCIATE PROFESSOR MASON; ASSISTANT PROFESSORS GAGE, INGERSOLL, TAYLOR; MR. BRAINARD, MR. HEIL, DR. ROEBUCK, DR. SMITH, MR. TERRY; MR. ALDRICH, MR. BARNES, MR. BECKER, MR. FORSYTHE, MR. MERICA, MR. PLAGGE, MR. STEVE, MR. TITSWORTH, MR. YOUNG; MR. LITTLETON, MR. MCCAULEY.

Following the general lectures and introductory laboratory practice given in course 1, this department offers advanced work which may be divided into two general lines. Courses 2 to 7 are arranged for those who are desirous of obtaining a more special knowledge of some of the newer developments in physics, or for those who are preparing to teach. Courses 8 to 20 are designed for those who intend to do special work in physics, and for these courses an adequate mathematical preparation is a prerequisite. This should include a working knowledge of the differential and integral calculus, and a completion of the equivalent of courses 2, 3, and 8.

Primarily for Undergraduates

1. General Lectures and Introductory Laboratory Practice. This course is open to election by all students, and may be taken without difficulty by those who have not had the mathematics of the freshman year. *A full study throughout the year. Lectures: M., Tu., W., Th., at* 12. Professor SNOW. One recitation by the class in smaller sections. Dr. Roebuck. Laboratory practice, *twice a week at hours to be arranged.* Assistant Professor GAGE; Mr. ALDRICH, Mr. BARNES, Dr. BECKER, Mr. MERICA, Mr. PLAGGE, Mr. STEVE, Mr. TITSWORTH, Mr. YOUNG; MR. LITTLETON.

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For Undergraduates and Graduates

2a. Advanced Course of Lectures. Heat and light. *First semester; M., W., F., at* 12. Professor MENDENHALL.

2b. Advanced Course of Lectures. Electricity and magnetism. *Second semester; M., W., F., at* 5. Mr. TERRY.

The subjects treated are taken up more fundamentally than is possible in course 1, and lead to the still more advanced courses 8a and 8b.

3a. Advanced Laboratory Practice. Heat and light. *First semester; S.,* 9 *to* 1. Professor MENDENHALL and Assistant Professor INGERSOLL.

3b. Advanced Laboratory Practice. Electricity and magnetism. *Second semester; S.,* 9 *to* 1. Mr. BRAINARD and Mr. FORSYTHE.

Courses 3a and 3b are designed to accompany courses 2a and 2b.

4. The Teaching of Physics. A course of experimental lectures covering all branches of physics and designed to serve as a training course for those who are preparing to teach. Under the guidance of the instructor, the class-work is conducted by the students themselves and the experiments are likewise performed by the members of the class, the aim here being to train each person in the clear presentation of this subject, and to acquaint him with the details of manipulating demonstrational apparatus

The course is open to all who have taken courses 2a, 2b, 3a, and 3b, or who are taking these courses in connection with this study. *Second semester; Tu., W., at* 5. Professor SNOW.

7. High and Low Temperature Measurement. Recent developments in theory and practice will be considered, accompanied by laboratory practice with the various methods. *First semester; one lecture and one laboratory period a week.* Professor MENDENHALL.

8a. Mathematical Physics. Theory of electricity and magnetism *First semester; Tu., Th., F., at* 10. Mr. TERRY.

8b. Mathematical Physics. Special topics in physical optics. Theory of the grating, spectroscopy, and dispersion. The first part of Schuster's *Theory of Optics* is used as a text. *Second semester; M., W., F., at* 9. Professor MENDENHALL.

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Courses 8a and 8b are extensions of courses 2a and 2b and are open to those who have taken these courses or their equivalents, and also a course in the differential and integral calculus.

9. Thesis. At the beginning of the first semester, the student is expected, with the advice of the instructors, to take up some special line of investigation, to be conducted under the direction of those in charge of the department. *Full study throughout the year.* Professor MENDENHALL and Assistant Professor INGERSOLL.

10. Colloquium. This is an informal meeting of the advanced students and members of the department of physics, for the critical reading and discussion of the current periodical literature. *Throughout the year; F., 4 to 6.* Professor MENDENHALL.

11. Modern Optical Instruments. An advanced laboratory course in light and radiation, designed to follow course 2a and 3a, which are prerequisites. *Second semester; four laboratory hours a week, at hours to be arranged.* Assistant Professor INGERSOLL.

Primarily for Graduates

14. Recent Development in Electrical Measurements. This course will consist of reports on current papers in the line of electrical measurements, followed by informal discussions. *Throughout the year; two hours a week.* Assistant Professor TAYLOR.

15. Elements of Theoretical Physics. This course, which includes the subject of elasticity, the kinetic theory, the potential function, and the conduction of heat, is designed for those who expect to devote but one year to graduate work, and is required of all candidates for the master's degree offering physics as a major study. *Throughout the year; M., W., F., at 9.* Assistant Professor INGERSOLL.

16. Electricity and Magnetism. The treatment of this course is based on that given in Drude's *Physik des Aethers*, special attention being given to the subjects of electro-magnetism and the theory of electro-magnetic waves. *Throughout the year; M., W., F., at 12.* Assistant Professor TAYLOR.

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17. The Electro-Magnetic Theory of Light. A rigid mathematical treatment of electro-magnetic waves, and their relations to the phenomona of light. *Throughout the year; M., W., F., at* 9. Professor MENDENHALL.

18. Thermodynamics. The treatment in this course will be substantially the same as that given in Planck's *Thermodynamics*, with additional applications to problems of radiation. *Throughout the year; M., W., F., at* 10. Professor MENDENHALL.

19. Graduate Research. This course is designed for those who have completed the equivalent of the laboratory practice represented by the undergraduate courses, and who now desire to devote some time to investigation in special lines. This work will be encouraged by reserving in the laboratory rooms which are devoted exclusively to research work, and by securing whatever special apparatus may be necessary to the successful carrying out of original investigation. Professor SNOW, Professor MENDENHALL, and Assistant Professor TAYLOR.

20. Theory of Electricity. An advanced course, including mathematical treatment of the electron theory, and designed to follow course 16. (Omitted in 1909–10.) Associate Professor MASON.

21. Recent Developments in the Electron Theory. Discussion of the more recent advances in the mathematical theory. *Throughout the year; Tu., Th., at* 10, *and a third hour to be determined.* Associate Professor MASON.

Engineering Courses

101. General Lectures and Introductory Laboratory Practice. This course is similar in many respects to course 1, but is more technical in its nature, and is particularly designed to meet the needs of the engineering students, of whom it is required. Lectures, *M., at* 5; *Th., at* 4. Mr. TERRY. Two recitations a week by the class in smaller sections. Dr. ROEBUCK, Dr. SMITH, Mr. HEIL. Laboratory practice, *twice a week throughout the year.* Assistant Professor GAGE; Mr. ALDRICH, Mr. BARNES, Mr. BECKER, Mr. MERICA,

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Mr. PLAGGE, Mr. STEVE, Mr TITSWORTH, Mr. YOUNG; Mr. LITTLETON.

104. Precise Measurements. A laboratory course in the exact determination of electrical quantities. Required of juniors in Electrical Engineering, and elective for students in the other engineering courses. *First semester; twice a week.* Mr. BRAINARD and Mr. FORSYTHE.

105. Advanced Electrical Measurements. A laboratory course in the more difficult electrical measurements such as the comparison of self-induction, mutual induction, capacity, etc. Elective for those who have completed course 3 or 104. *Second semester; Tu., F.,* 2 *to* 4. Mr. BRAINARD and Mr. FORSYTHE.

ASTRONOMY

PROFESSOR COMSTOCK AND ASTRONOMER FLINT.

For Undergraduates

1. General Astronomy. A rapid survey of the fundamental concepts of astronomy. Supplemented by a direct study of the sky and by quizzes and examination upon an assigned text. Freshmen will be admitted to this course only by special permission in each case. *First semester; M., W., F., at* 12. Professor COMSTOCK.

For Undergraduates and Graduates

13. Spherical Astronomy. Apparent motion of the celestial sphere. Astronomical coordinates and their transformation. Parallax. Refraction. Time. Use of the ephemeris. *First semester; M., W., at* 12. Professor COMSTOCK.

14. Practical Astronomy. Theory and use of the sextant, theodolite, transit, and equatorial. *Second semester; M., Tu., W., Th.,* 2 *to* 4. Professor COMSTOCK.

16. Orbital Motion. The differential equations of undisturbed motion and their integrals. Computation of ephemerides. Orbits of double stars and comets. *Throughout the year; conference M., at* 11, *with two or four hours of laboratory work a week.* Professor COMSTOCK.

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For Graduates

20. Perturbations. The general equations of disturbed motion. Special perturbations. Mechanical quadratures, with numerical applications. A continuation of course 16, and open only to students who have completed that course or its equivalent. Professor COMSTOCK.

22. The Method of Least Squares. The theory with application to numerical computations. *Throughout the year; conference F., at* 11, *with two or four hours laboratory work a week.* Professor COMSTOCK.

25. Research Courses. Graduate students and others desiring to pursue advanced astronomical studies will be received in the Washburn Observatory as assistants, and will take part in the regular series of observations with the equatorial telescopes or with the meridian instruments, at the same time continuing their theoretical studies. Facilities for independent original work will be afforded to such students, and their work, if of sufficient value, will be printed in the *Publications of the Washburn Observatory.* Twelve volumes of these *Publications* have already been issued.

For other courses of instruction consult the title Astronomy, in the announcement of the College of Engineering.

GEOLOGY

PROFESSORS LEITH, WINCHELL; ASSISTANT PROFESSORS BLACKWELDER, MARTIN, WHITBECK; MR. MEAD, MR. STEIDTMANN.

Physics, chemistry and mineralogy are required of all who make geology a major study. Exceptions may be made for students taking major in physical geography. These subjects should be taken either before or during the first year's course in geology. They are also desirable for students taking geology not as a major. Students lacking chemistry and physics will be allowed to enter course 1 only by special arrangement with the instructors. Such students are advised to take course 4, Physical Geography, or course 6, Mineralogy.

Students entering courses in mineralogy as a training in

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science should have a general knowledge of chemistry, at least equivalent to that derived from a high school course. No other preliminary courses are required.

Courses 8 to 24 are advanced courses, adapted for graduate students, or for students who have had at least one full year of geology and mineralogy.

Primarily for Undergraduates

1. General Geology. This course aims to give an elementary survey of dynamic, structural, physiographic, and historical geology, and of minerals, rocks, and fossils, to show the student the nature of the field covered by geological study. Excursions are made to points in the vicinity where geologic processes and forms are illustrated. An elementary knowledge of physics and chemistry is required. *First semester; five unit-hours; at* 12. Assistant Professor BLACKWELDER.
2. Applied Geology. This includes economic geology, principles of map interpretation, and field geology. Prerequisite, course 1 or its equivalent. *Five unit-hours, second semester.* The work is divided as follows: (a) Elementary survey of economic geology. *First half of second semester; M., W., F., at* 12. Professor LEITH. (b) Principles of map interpretation. Laboratory study of geologic maps, involving the interpretation of structure and geologic history of the areas represented. *First half of second semester; hours to be arranged.* Assistant Professor BLACKWELDER. (c) Field Geology. The study and mapping of selected areas adjacent to Madison. Involves preparation of geologic maps, and written reports. The course includes a three-day trip to the Baraboo Ranges and the Dells of the Wisconsin river. *Twelve hours a week (optional hours) for the last twelve weeks of the second semester.* Assistant Professor BLACKWELDER and Professor LEITH.
3. Physiography and Geography. Identical with Geology 4 except that there is no laboratory work. *Throughout the year; three unit-hours. Lectures M., W., F., at* 9. *Quiz section at hours to be arranged.* Assistant Professor MARTIN.

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4. Physiography and Geography. The lands, the atmosphere and the oceans. Illustrated in the first semester by regional studies of the various physiographic and topographic provinces of the United States, and in the second semester by a review of the regions of the world, involving an areal study of each continent and its several countries, their geology, topography, hydrography, soil, climate, resources, population, industries, government, etc. *Five unit-hours throughout the year. Lectures, M., W., F., at* 9; laboratory or field work *M., Tu., W., or Th.,* 2 *to* 4; quiz section at hours to be arranged. One all-day excursion (Saturday) in fall and spring. Assistant Professor MARTIN and assistants.

4a. Physical Geography for Commerce students. This course embraces the essential principles of course 4, with a sufficient treatment of the physiography of the United States to prepare the student for Economic Geography. May not be taken by others than Commerce students. *Three unit-hours. First semester; M., W., at* 10; *and quiz hour to be arranged.* Assistant Professor WHITBECK.

5. Regional Geography. An application of the principles of systematic physiography and geography to the areal description of a region and the geology, topography, physiographic history, climate and natural resources of the several parts; influence of geographic conditions on manner of life, industries, location of cities, and historic events. In the first semester (a) the Geography of North America, or in alternate years, (b) the Geography of Europe. In the second semester the Geography of Wisconsin. Geology 3, 4, 4a, 1, or an equivalent prerequisite. *Three unit-hours throughout the year; Tu., Th., at* 10 *and laboratory or quiz hour to be arranged.* Assistant Professor MARTIN.

6. General Mineralogy. The course begins with an elementary study of crystallography, after which the physical and chemical characters of minerals are reviewed. Descriptive mineralogy follows with laboratory work in blowpipe methods and determinative mineralogy. It is desirable that a college course in general chemistry be taken first, but students who have had a high school course in chem-

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istry may take mineralogy by special arrangement with the professor in charge. Physics and trigonometry should also be taken, if possible. *Throughout the year; M., Tu., W., Th., F., at* 11. Professor WINCHELL and Mr. STEIDTMANN.

7. Short course in Mineralogy. This course is planned to meet the needs of those whose life work will require only slight acquaintance with minerals. It is open to engineering and chemistry students whose required studies do not leave time for course 6. The principles of mineralogy and crystallography are briefly treated, and attention is given to a few of the commonest minerals and to some of the most important ore minerals. *First semester; Tu., Th., F., at* 2. Mr. STEIDTMANN.

7a. Short course in Petrology. The purpose of this course is to enable the student to identify those rock minerals and rocks which can be determined in field specimens by simple megascopic methods without the aid of elaborate diagnostic methods. Prerequisite, course 7, or the first semester of course 6. *Second semester; Tu., Th., F., 2 to* 4. Mr. STEIDTMANN.

For Undergraduates and Graduates

8. Petrology. The course in petrology is intended to give the student a practical knowledge of rocks of all kinds. In order to study the texture of rocks and to identify accurately the mineral constituents a microscope is essential. Therefore, the course opens with a review of the principles of optics as applied to the polarizing microscope; this is followed by the microscopic study of the important minerals. The textures of rocks are then investigated; and the mineral and chemical composition and the textures are used as a means of rock classification. Prerequisite; course 6. *Throughout the year; M., W., F., 8 to* 10. Professor WINCHELL.

9. Advanced Physiography. A second course on the physical geography of the lands, involving both the topical and regional study of processes and features of the earth's surface. Geology 4, or 1 and 2 or an equivalent, prerequis-

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ite. *Second semester; two unit-hours.* Assistant Professor MARTIN.

10. The Teaching of Physical Geography. Includes both subject matter and methods. Considers (1) the aims in teaching physical geography in the high school; (2) the phases of the subject which deserve emphasis; (3) the relation of the subject to others in the curriculum; (4) materials for the teachers' use; (5) field and laboratory work. Geoogy 4 or 4a prerequisite. *Second semester; M., W., at* 10. *Two unit-hours.* Assistant Professor WHITBECK.

11. Economic Geology. Emphasis is placed on the occurrence, origin, and development of metallic minerals, involving a summary of the principles of metamorphism and ore deposits given in course 15. Excursions are taken to iron, copper, lead and zinc districts accessible from Madison. The course includes also a study of water, building materials (of mineral origin), soils, coal, petroleum, natural gas, and minor non-metallic mineral products. Chemistry 1, Mineralogy 6 or 7, and Geology 1 and 2 are prerequisites for this course. *Throughout the year; M., W., F., at* 4. Given in alternate years with course 15. (To be given in 1909–10.) Professor LEITH.

12. Historical Geology. The pre-human history of the earth and its living things. The theories of the earth's origin are first discussed, and then each geological period is taken up in some detail with regard to changes in geography, and structure. The evolution of the successive groups of animals and plants is treated in its relation to the physical changes just mentioned. Prerequisite: course 21, or an adequate knowledge of biology. *Second semester; five hours a week, at* 9. Assistant Professor BLACKWELDER.

14. Principles of Structural Geology. The behavior of rocks under fracture and flowage, requiring the discussion of joints, faults, folds, and cleavage, from field, experimental and mathematical standpoints. *Lectures and laboratory work. First semester; Tu., Th., at* 4. Professor LEITH.

15. Metamorphism. The course is based largely on the survey monograph on this subject by President Van Hise. *Lectures and laboratory work. Throughout the year; M.,*

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W., F., at 4. Alternates with course 11. Professor LEITH.

16. Metamorphic Rocks. A laboratory course. With special reference to description and classification under the principles of metamorphism of courses 11 and 15. *Throughout the year; Tu., W.,* 2 *to* 4. Mr. MEAD.

17. Principles of Pre-Cambrian Geology. This course treats of the pre-Cambrian stratigraphy of North America, and with the problems of correlation, structure and metamorphism to be met in the study of the ancient crystalline rocks. U. S. Geological Survey specimens and slides from all the principal areas of pre-Cambrian rocks of North America are available for study. Alternates with course 18. (Given in 1909–10.) *Second semester; Tu., Th., at* 4. Professor LEITH.

18. Lake Superior Geology. A course offered because of the scientific and commercial importance of the Lake Superior region, and the relations of this department to its study. The U. S. Geological Survey monographs on the Lake Superior region are used as texts, and the original specimens, slides, and charts described in the monographs are at the disposal of the students. At the close of the course in the spring, an excursion is made to points of geologic and economic interest in the Lake Superior country. Given in alternate years with course 17. *Second semester; Tu., Th., at* 4. Professor LEITH.

19. Petrology of Lake Superior Rocks. Study of selected rock types of the Lake Superior region and the problems of mineral paragenesis and rock metamorphism connected therewith. Prerequisite, course 10. *Three hours a week.* Professor WINCHELL.

20. Advanced Mineralogy. Special problems in mineralogy or detailed crystallographic work. Prerequisite, course 6. *Hours to be arranged.* Professor WINCHELL.

21. Paleontology. A brief study of the more important groups of animals and plants, with special reference to the extinct types which have been prominent in the various periods of geologic history. The course is designed to serve as a foundation for course 12. The work consists of lectures, supplemented by laboratory study. *First semester; M., W., F., at* 9. Assistant Professor BLACKWELDER.

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22. Research Work. Offered by the members of the department in continuation of their respective courses. President Van Hise will assist in the direction of this work. The amount of time that can be allotted is subject to special arrangement.
23. Geological Seminary. Subjects under investigation by the members and students of the department, and reviews of important publications are discussed. *F., at* 5.
24. Advanced Map Study. This is essentially in-door field-work. Geologic and topographic maps furnish the facts used. The course affords practice in the solving of geologic questions such as occupy the attention of the professional geologist in the field. Prerequisite, course 14. Course 12 is desirable as preparation. Laboratory work and individual conferences. *Second semester; two unit-hours, at hours to be arranged.* Assistant Professor BLACKWELDER.

METEOROLOGY

MR. E. R. MILLER OF THE U. S. WEATHER BUREAU.

For Undergraduates

1. Meteorology. A course of lectures on the stormy phenomena of the atmosphere, giving especial attention to the explanation of the movements of the air and of the transformations of the moisture of the air in terms of the laws of physics; and practical work in measuring the barometric pressure, temperature, rainfall, wind, humidity, and evaporation with standard instruments. In the course the work of the U. S. Weather Bureau is explained and its results applied to problems arising in the work of the farmer, engineer and teacher. *First semester; two lectures and one practice period a week.*
2. Climatology. Lectures on the methods and materials of climatology, followed by study of the climates of the world and of special regions with reference to their physical causes, and exercises in the discussion of climatic data. *Second semester; two lectures and one practice period a week.*

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For Graduates

3. Advanced work in Meteorology. A study of the applications of the laws of hydrodynamics and thermodynamics to atmospheric phenomena, following the work of recent investigators. *Either semester; two hours a week.*
4. Research work.

BIOLOGY

THE BIOLOGICAL DEPARTMENTS

Study in the biological sciences is conducted in the independent, though coordinated departments of Zoology, Botany, Anatomy, Physiology, Pathology, Pharmacology and Toxicology, and Bacteriology and Hygiene. The purpose of these departments is to offer the fullest possible facilities for the study of biological problems. In the Department of Botany, the structure, physiology, classification and pathology of plants, and the fundamental problems of cell structure and function are studied, as well as the direct application of the science to pharmacy and agriculture. In the Department of Bacteriology, micro-organisms are first studied from the general biological point of view, and, in the advanced courses, attention is devoted to the applications of bacteriology, especially to medicine, sanitation and agriculture In the Department of Zoology, the broader problems of animal life are considered, as well as the special anatomy, physiology and life history of animals. In the Department of Anatomy, the development, and the gross and microscopic structure of the lower vertebrates and man are taken up, both in their more general scientific aspects, and in reference to the special needs of students preparing for practical medicine. In the physiological department, physiology and physiological chemistry are pursued from a similar point of view. Each department offers a series of graded courses so arranged as to meet the needs of advanced students in various lines. Ample opportunity for research is offered those capable of undertaking original investigation. This work is encouraged by the Biological Club, in which all the departments participate, as well as by special seminaries held by the various departments.

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The Madison lakes give this university peculiar advantages for biological work. Science Hall is located only a few hundred feet from Lake Mendota, and abundant apparatus is available for the collection and study of the lake fauna and flora. The facilities of the Wisconsin Geological and Natural History Survey are also available at all times. The libraries of the University and the Wisconsin Academy of Sciences, Arts and Letters afford exceptional advantages in the way of literature. The number of sets of important journals has been greatly increased within recent years, so that at present most of the important biological journals are available.

Primarily for Undergraduates

1. General Biology. Introductory to botany, zoology, anatomy, physiology and bacteriology, and required as a preliminary to all advanced work in these departments. *Two recitations or lectures, one quiz, four laboratory periods a week. Lectures, M., W., at* 3. Professor HARPER and Assistant Professor HOLMES.

For laboratory work the class is divided into sections, each meeting for two hours daily. Associate Professors ALLEN, MARSHALL; Assistant Professors HOLMES, MARQUETTE, OVERTON; Mr. WAGNER; Miss ALLEN, Mr. ARZBERGER, Miss BACHMAN, Mr. BRANNON, Miss HICKMAN, Mr. LUTMAN, Mr. RICHARDS, Miss RIGDEN, Mr. STOUT.

Quiz sections meet once a week.

The first semester is devoted to a study of the general principles of biology as illustrated by plants. The second semester is devoted to zoology. Students can enter the course in either semester.

ZOOLOGY

PROFESSOR BIRGE; ASSOCIATE PROFESSOR MARSHALL; ASSISTANT PROFESSOR HOLMES; MR. WAGNER; MR. KENT, MR. RICHARDS, AND MISS RIGDEN.

The courses in Zoology are designed to give the student a thorough acquaintance with the facts of the science and the fundamental problems of biology, so that he may be well equipped either for teaching or investigation. The department possesses

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a good collection of animals, both for morphological and systematic work. It is exceptionally well provided with sets illustrating life histories, mimicry, and seasonal and sexual dimorphism. There are numerous sets of models by Ziegler and others illustrating the development of animals, and a large collection of Blaschka models of invertebrates. There is also a good and rapidly increasing collection of the fauna of the state. The laboratories are well supplied with apparatus, and the facilities of the Wisconsin Geological and Natural History Survey are available at all times. The preparation for, and encouragement of, research receive especial attention, and ample facilities are afforded the student who wishes to take up any line of investigation.

A Journal Club meets for the discussion of recent zoological literature.

For Undergraduates and Graduates

2a. Invertebrate Zoology. A discussion of the structure, development, classification, instincts, and life histories of invertebrate animals. Occasional field excursions will be made, and especial attention will be paid to the local fauna. Invertebrate zoology is a year's course, but it is so divided that the two parts come in the first semester of alternate years. Either half of the course, however, may be taken independently of the other. The course which is devoted to the lower invertebrates, the Protozoa, Coelenterata, Vermes, Mollusca, and some smaller groups is given in 1908–09. *First semester. Lectures, M., W., at* 10. *Three laboratory periods a week.* Assistant Professor HOLMES.

2b. A continuation of course 2a devoted to the higher invertebrates, the Crustacea, Arachnida, Myriapoda, Insects, Echinodermata, and Tunicata. *First semester. Lectures, M., W., at* 10. *Three laboratory periods a week.* (Not given in 1908–09.) Assistant Professor HOLMES.

4. Vertebrate Zoology. A study of the structure, physiology, habits, classification, and distribution of vertebrates. This course will cover for the vertebrates the same general ground discussed in course 2. *Second semester. Lectures,*

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Tu., Th., at 8. *Laboratory and field work three periods a week. Five unit-hours.* Mr. WAGNER.

5. Organic Evolution. A series of lectures on the evidences for and general bearing of the theory of organic evolution. These lectures require no previous biological work, and are open to all students beyond the freshman year. *First semester; Tu., at* 4. Assistant Professor HOLMES.

6. Variation and Heredity. A discussion of the main facts and theories of variation and heredity, and their relation to other problems, biological and sociological. The work will be carried on in part as a lecture course and in part as a pro-seminary. *First semester; two hours a week, at hours to be arranged.* Mr. WAGNER.

7. Evolution Problems. A critical discussion of the theory of organic evolution, and the general development of evolutionary speculation since Darwin. Lectures and reports on assigned topics. Open to advanced students of biology, and others who may be especially qualified to carry on the work. *Second semester; Tu., Th., at* 2. Assistant Professor HOLMES.

9. Entomology. A general course dealing with the anatomy, embryology, classification, and life histories of insects. *Second semester. Lectures, Tu., Th., at* 10. *Three laboratory periods.* Associate Professor MARSHALL.

10. Animal Parasites. The structure and life history of animal parasites, with especial reference to those of man. Lecture and laboratory work. *First semester. Three unit-hours.* Associate Professor MARSHALL.

11. Elementary Entomology. An elementary course in entomology, on the structure, life history, and habits of insects and their relation to man and other animals. Open to all students. *Lectures. First semester; M., W., at* 11.

12. Entomology. Life-history and structure of economic insects. This course gives, both in lectures and laboratory work, the life-history, structure and classification of those insects which are of economic importance. *First semester; three unit-hours.* Associate Professor MARSHALL.

17. Bionomics. It is the aim in this course to consider the habits and activities of animals in relation to their environment. An effort will be made to discuss the present state

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of our knowledge on the following points: The relation of animals to moisture, heat, and light, the supply of oxygen, and the nature of the substratum; migration; the fauna of the water, its nature, distribution and movements; and the general questions of geographical distribution. This course should be preceded by courses 2 and 4. *Two lectures a week at hours to be arranged. Laboratory and field work once a week. First semester; three unit-hours.* Mr. WAGNER.

18. Morphogenesis. A discussion of the results of experimental work upon the development and regeneration of organisms, and the general theories of development and regeneration. Open to advanced students of biology. *One lecture a week during the first semester.* Assistant Professor HOLMES.

20. The Teaching of Zoology. A consideration of the aims, methods, and subject matter of zoological instruction in the schools. *One lecture or conference a week during the first semester.* Assistant Professor HOLMES.

21. Orinthology. A study of the main facts relating to birds. This course is intended to meet the needs of students interested in nature study. In the field work an opportunity is offered to become acquainted with most of our common forms. *One lecture and one laboratory or field period a week. Hours to be arranged. Two unit-hours.* Mr. WAGNER.

23. Entomology. Advanced work for students who have finished course 9 and desire to continue some special line of work or investigation. *Throughout the year.* Associate Professor MARSHALL.

28. Research Work. Special work for advanced students under different members of the staff. Special problems will be assigned, and students prepared for independent investigation will be given all the opportunities available for carrying on their work.

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BOTANY

PROFESSOR HARPER; ASSOCIATE PROFESSOR ALLEN; ASSISTANT PROFESSORS DENNISTON, MARQUETTE, OVERTON; MISS ALLEN, MR. ARZBERGER, MISS BACHMAN, MR. BRANNON, MISS HICKMAN, MR. LUTMAN, MR. STOUT.

For Undergraduates and Graduates

1. General Biology. See Index.
2. Morphology. (a) Algae and Fungi. Course 1 is a prerequisite to this course. The morphology of types of the principal groups will be studied in the laboratory. The lectures will give an outline of the development of the different series and their classification and will also discuss problems of research in connection with the different groups. *First semester; Daily, 2 to 4; lectures, Tu., Th., at 3.* Professor HARPER and Assistant Professor MARQUETTE.
3. Morphology. (b) Bryophytes and Pteridophytes. A study of types of liverworts, mosses, ferns, equisetum, and lycopods. *Second semester; M., Tu., 2 to 4; lecture, Tu., at 3.* Associate Professor ALLEN.
4. Morphology. (c) Seed plants. A study of the life histories of a few types of seed plants, including the phenomena of pollination, fertilization, development of organs and tissues, and discussions of homologies and allied developmental problems. *Second semester; W., Th., F., 2 to 4; lecture, Th., at 3.* Associate Professor ALLEN and MISS HICKMAN.
5. Vegetable Histology. A systematic study of the tissues of phanerogams and ferns. Use of reagents and stains, section cutting and mounting. Required of all students in Pharmacy. *First semester; three unit-hours.* Assistant Professor DENNISTON.
6. Physiology of the Seed Plants. A course of lectures and laboratory work on the special physiology of the vascular plants. The laboratory work is presented as a series of problems on the nutrition, growth, reactions, etc., of the common cultivated plants. *Second semester; four unit-hours.* Professor HARPER, Assistant Professor OVERTON and MR. STOUT.

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7. Cytology. General physiology of organisms. Lectures and experimental work on the reproduction, irritability and nutrition of the cell. Must be preceded by courses 2, 3 and 4, and an ability to read German is desired. *Daily; hours on consultation.* Professor HARPER and Assistant Professor MARQUETTE.
8. Mycology. Special work on the morphology and classification of the fungi is offered to advanced or graduate students. *Hours on consultation.* Professor HARPER.
9. Plant Pathology. Lectures and laboratory work on the diseases of plants. Especial attention is given to the methods of infection, effect on the host plant, etc., of the fungi which cause diseases of garden crops, cereal grains, etc. *Hours on consultation.* Professor HARPER and Mr. LUTMAN.
10. Diseases of Trees. A special course of lectures and laboratory work on the diseases of economically important trees, and the causes of decay in timber used for building and other purposes. The lectures may be taken without the laboratory work. *Second semester; two unit-hours. Hours on consultation.* Associate Professor ALLEN and Mr. BRANNON.
11. Bryology. Special work on the morphology and classification of the bryophytes is offered to advanced or graduate students. This course must be preceded by courses 1 to 4, or their equivalent. *Hours on consultation.* Associate Professor ALLEN.
12. Dendrology. A study of the structure and characteristics of forest trees. Lectures, laboratory, and field work. Open to those who have had the equivalent of one semester's work in general botany. *Second semester; two unit-hours.* Assistant Professor DENNISTON.
13. Botanical Methods. Practice will be given in methods of preparing plant material and of growing various algae and fungi for use in the class room. Opportunity will also be given for collecting and preserving material for high school laboratory courses. Open to students who have had courses 1 to 4. *Second semester; two unit-hours.* Professor HARPER and Assistant Professor MARQUETTE.
14. Hybridization, Parthenogenesis, and special problems in the

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fertilization of the angiosperms. The course deals with some of the more fundamental principles of plant breeding. *First semester; two unit-hours.* Assistant Professor OVERTON.

15. Botanical Seminary. For the study of special subjects in general physiology, and for the presentation of the results of investigation. Professor HARPER.

16. Research. Students whose preparation is adequate may on consultation be assigned special subjects of investigation. *Daily.* Professor HARPER, Associate Professor ALLEN and Assistant Professor DENNISTON.

17. Facts and Theories of Heredity. A critical discussion of the more significant theories of heredity in the light of the results of recent experimental and cytological investigations. Course 1 or its equivalent is a prerequisite. *Second semester; two lectures a week.* Associate Professor ALLEN.

18. Phycology. Special work on the morphology and classification of fresh-water and marine algae is offered to advanced or graduate students. This course must be preceded by courses 1 to 4, or their equivalent. *Hours on consultation.* Associate Professor ALLEN.

19. Plant Reactions. A course of lectures on the responses of plants to external stimuli, with descriptions of the more modern apparatus for research on the physiology of the cell and occasional demonstrations. *Second semester; twice a week.* Assistant Professor MARQUETTE.

20. Description and Classification of Cultivated Plants. A brief systematic course for agricultural students dealing with the structure and relationships of the common crop plants and weeds. *First semester; two unit-hours.* Professor HARPER and Mr. STOUT.

21. Colloquium. Reports and discussions of the literature bearing on the problems under investigation in the laboratory. Associate Professor ALLEN.

30. Morphology and Classification of the Seed Plants. An elementary course designed primarily for students of pharmacy and agriculture, but open to others who desire to begin the study of botany. The life histories and ecology

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of seed plants, with a special study of types of economic importance, such as drug and cultivated plants. Field work will be an important feature. Excursions on Saturdays. *Second semester; daily, 8 to 10.* Assistant Professor DENNISTON and Mr. ARZBERGER.

31. Microscopical Examination of Drugs and Food Products. The object of this course is to study and illustrate the methods of identifying powdered drugs and food products, and of detecting adulterations. *Second semester; three unit-hours.* Assistant Professor DENNISTON.

32. Pharmacognosy. This course presents to the student the main facts of the natural history of drugs, and the plants producing them. Required of all students in pharmacy. Text-book, Culbreth's *Materia Medica. Throughout the senior year; twice a week.* Assistant Professor DENNISTON.

33. Pharmacognosy. For three-year or four-year pharmacy students. The course consists in a study of the microscopic structure and characteristics of further types of drugs. Required of all seniors. *First semester of the senior year; three unit-hours.* Assistant Professor DENNISTON.

34. Pharmacognosy. An abridgment of the work given to pharmacy students is offered for those intending to study medicine. As far as may be, the methods used are those detailed for the foregoing courses. Two lectures and two hours' laboratory work per week. *First semester; three unit-hours.* Assistant Professor DENNISTON.

35. The Collection and Commerce of Cr de Drugs. Laboratory and field work supplemented by lectures and recitations. *First semester of the junior year; one unit-hour.* Assistant Professor DENNISTON.

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ANATOMY

PROFESSOR BARDEEN; ASSOCIATE PROFESSOR MILLER; ASSISTANT PROFESSOR ALLEN; AND MR. WAHL.

For a fuller description of the courses offered in this department, see announcements under College of Medicine.

For Undergraduates and Graduates

2. Teachers' Course. *Second semester; once a week; one unit-hour.* Professor BARDEEN.
5. Comparative Anatomy of Vertebrates. *M., W., F.,* 2 *to* 4. Assistant Professor ALLEN.
6. Comparative Anatomy. *First semester; Tu., Th.,* 2 *to* 4. Assistant Professor Allen.
10. Histology and Organology. *M., W., F.,* 9 *to* 12. Four unit-hours. Associate Professor MILLER.
15. Vertebrate Embryology. *Second semester; Tu., Th.,* 2 *to* 5. Professor BARDEEN, and Assistant Professor ALLEN.
17. Problems of Vertebrate Embryology. *Second semester; M., W., F.,* 11 *to* 1. Assistant Professor ALLEN.
21. Human Anatomy. *Throughout the year; daily,* 3 *to* 5. *Six unit-hours per semester.* Professor BARDEEN, Associate Professor MILLER, and Mr. WAHL.
22 Topographical Anatomy. *First semester; M., W.,* 2 *to* 5. Three unit-hours. Associate Professor MILLER.
23. Special Human Anatomy.
26. Neurology. *Second semester; M., W.,* 9 *to* 12. Three unit-hours. Associate Professor MILLER.
30. Advanced Work in Anatomy.
31. Historical Seminary. Associate Professor MILLER.

Primarily for Graduates

35. Investigation under Direction.
36. Journal Club.
40. Independent Investigation.

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PHYSIOLOGY AND PHYSIOLOGICAL CHEMISTRY

PROFESSOR ERLANGER; ASSISTANT PROFESSOR BRADLEY; AND MR. MEEK.

Primarily for Undergraduates

1. Elements of Human Anatomy and Physiology. Lectures and quizzes illustrated by models, special preparations and experiments. This course is intended primarily for those who wish a general, rather than a detailed, knowledge of the structure and functions of the human organism, and for those intending to teach elementary human physiology. It is open to all students except freshmen. *Second semester; M., W., F., at* 11. Mr. MEEK.

For Undergraduates and Graduates

The following courses are designed especially for students intending to study medicine or to teach the biological sciences. For details see announcement under College of Medicine.

4. Physiological Chemistry. (a) Lectures. (b) Laboratory course. (c) Conferences. *Second semester; Tu., Th., F., S.,* 10 *to* 1. *Four unit-hours.* Assistant Professor BRADLEY.
5. Physiology. (a) Lectures and demonstrations. (1) Preliminary course. *Second semester; Tu., Th., at* 12. *Two unit-hours.* (2) Continued course. *First semester; M., Tu., W., Th., F., at* 12. *Five unit-hours.* (b) Laboratory work. *First semester until the Christmas recess; Tu., Th.,* 2 *to* 5. *Two unit-hours.* Professor ERLANGER and Mr. MEEK.
8. Advanced Laboratory course in Physiology (including research). Professor ERLANGER.
10. Advanced Laboratory Course in Physiological Chemistry. Assistant Professor BRADLEY.
12. Journal Club. Advanced students are expected to report from time to time upon papers of physiological and physiological-chemical interest that may appear in the current journals. *Throughout the year; one hour a week.*

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BACTERIOLOGY AND HYGIENE

PROFESSOR RAVENEL; ASSOCIATE PROFESSOR FROST; ASSISTANT PROFESSOR HASTINGS; DR. FULLER, MR. HAMMER, MR. HOFFMANN, MR. NELSON, AND MR. SMITH.

For students desiring a general laboratory course in Bacteriology, course 1 should be taken. Chemistry and General Biology should precede this work. On the basis of this general course, the student is then able to take up special work in Medical (course 2), Sanitary (course 8), Dairy (course 21), Agricultural (course 20), Home Economics (course 9), Bacteriology. Course 1 followed by courses 2, 9, 20, or 21, are prerequisites for major work in bacteriology.

Primarily for Undergraduates

1. General Bacteriology. A course designed to give an understanding of the morphology and physiology of bacteria, and laboratory training in cultural and microscopical technique. *Repeated each semester; lectures and laboratory; three unit-hours. Given in the College of Letters and Science. Lectures; Tu., Th., at* 11; *two laboratory periods of two hours each per week.* Associate Professor FROST, Dr. FULLER and Mr. NELSON.

3. Thesis Work in Bacteriology. Students who desire to select their theses in this department must take course 1 in their junior year or before, and if the subject is selected in any other than general biological lines, the special work in medical, sanitary, or agricultural bacteriology, respectively, should be taken in the second semester of the junior year. The subject should be selected before the close of the junior year. Professor RAVENEL, Associate Professor FROST, and Assistant Professor HASTINGS.

6. Communicable Diseases: Their causes and prevention. A course of lectures, non-technical in character and open to all students except freshmen. No previous work in science is required. *Second semester; one unit-hour.* Associate Professor FROST.

7. General Hygiene. A course of lectures dealing with the hygienic aspects of air, water, and food supplies, and the disposal of sewage. Non-technical in character and open

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to all students except freshmen. *First semester; one unit-hour.* Associate Professor FROST.

For Undergraduates and Graduates

2. Medical Bacteriology. A consideration of the relation of bacteria to disease processes in man and animals. A course designed to give students who intend to study human or veterinary medicine, a survey of the subject of pathogenic bacteria. This course should be taken by students intending to devote themselves to general bacteriology. *First semester; lectures and laboratory; five unit-hours.* Professor RAVENEL; Mr. NELSON and Mr. SMITH.

4. Advanced Work in Bacteriology. Students who have had sufficient preliminary work (course 1 and courses 2, 9, 20, and 21, or their equivalent) will be assigned special problems for study. *Laboratory work and conferences.* Professor RAVENEL and Associate Professor FROST.

When the number of students warrants it this course will be extended to include work in practical hygiene.

8. Biology and Chemistry of Water Supplies. Course 1 is a prerequisite study. This course considers the technique of water examination, the hygiene of water-borne diseases, the examination of filters, the disposal of sewage, and the interpretation of analyses, bacteriological and chemical. *Lectures and laboratory work; three unit-hours.* Professor RAVENEL; Dr. FULLER and Mr. BOWLES.

9. Industrial Bacteriology. Lectures, recitations and laboratory work. This course includes a study of the micro-organisms and processes concerned in the more common fermentations, as alcoholic, lactic and acetic acid; simple analyses of water, milk, and food supplies; a study of disinfectants, etc. It is intended especially for students in home economics and for chemical students who do not have the time for the more extended courses in medical or agricultural bacteriology. Course 1 is prerequisite. *Three or five unit-hours.* Associate Professor FROST.

11. Immunity. Includes a study of the phenomena and theories of immunity in general as well as the various infectious diseases. Lectures and reports. Open only to advanced

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students. *First semester; one unit-hour.* Professor RAVENEL.

11a. Laboratory Course in Immunity. This is an experimental course and includes a study of cytotoxins, agglutinins, precipitins, toxins, antitoxins, opsonins, etc. *First semester; two unit-hours or more.* Associate Professor FROST.

12 Pathogenic Protozoa. This includes a study of the most important of the protozoa known to cause human and animal diseases. Open only to advanced students. Lectures, demonstrations and reports. *Second semester; one unit-hour.* Associate Professor FROST.

20. Agricultural Bacteriology. A general survey of the relation of bacteria to agriculture, embracing their relation to soils, manures, diseases of plants and animals, and to dairying. *Second semester; lectures; three or five unit-hours.* Professor RAVENEL; Assistant Professor HASTINGS; Mr. HAMMER and Mr. HOFFMANN.

21. Dairy Bacteriology. The relation of bacteria to the production of market milk, butter and cheese. *First semester; lectures and laboratory work; three unit-hours.* Assistant Professor HASTINGS; and Mr. HAMMER.

40. Journal Club. A club consisting of instructors and advanced students in the department meets every second week throughout the year. Advanced students are required to report on the progress in science along lines assigned to them by the program committee. This necessitates the reading of current scientific journals furnished by the department.

Primarily for Graduates

5. Research Work in Bacteriology. Opportunity is offered for work in original investigation, which may be arranged for on consultation. A reading knowledge of French and German is necessary. Professor RAVENEL, Associate Professor FROST, and Assistant Professor HASTINGS.

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PHARMACOLOGY AND TOXICOLOGY

PROFESSOR LOEVENHART AND DR. GROVE.

For a fuller description of the courses offered in the department see announcements under College of Medicine.

For Undergraduates and Graduates

1. Toxicology, Lectures and Laboratory work. *First month of second semester; M., Tu., Th., F., at* 2, *W.*, 2 *to* 5. Professor LOEVENHART and Dr. GROVE.
4. Pharmacology. Lectures and Laboratory work, from the completion of the course in Toxicology to the end of the second semester (about 12 weeks). Lectures, *M., Tu., Th., F., at* 2. Laboratory, *W.*, 2 *to* 5. Professor LOEVENHART and Dr. GROVE.
8. Investigation under direction.
12. Independent Investigation.

PHARMACY

ASSISTANT PROFESSOR FISCHER, MR. DU MEZ, AND MR. TITUS.

Primarily for Undergraduates

1. Laboratory Technique. The principles and practice of pharmaceutical operations, such as weighing, determination of specific gravity, boiling point, melting point, optical rotation, maceration, percolation, diffusion, dialysis, crystallization, and precipitation. *Lectures and recitations, W., F., at* 11; *one laboratory period.* Mr. DU MEZ.
2. Pharmaceutical Technology. The study and manufacture of galenical and other preparations: waters, tinctures, fluid extracts, spirits, oleo-resins, etc.; also of pills, suppositories, ointments, plasters, etc. *First semester; lectures and recitations, Tu., Th., at* 11; *three laboratory periods.* Assistant Professor FISCHER and Mr. TITUS.
3. Prescription Practice. The study of the prescription; practice in the compounding of physicians' prescriptions; also the study of physical, chemical, and therapeutical incom-

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patibilities. *Second semester; lectures and recitations, Tu., Th., at* 11; *two laboratory periods.* Assistant Professor FISCHER and Mr. TITUS.

10. The Economic Function of the State. This course consists of a series of weekly lectures, historical and critical, on the state in its relation to industry, trade, and the professions, with special reference to pharmacy. Given in alternate years.
11. Law Applied to Pharmacy. A course of lectures treating of the validity and construction of laws especially restraining the practice of pharmacy; of the liability of pharmacists, both criminal and civil; for their own violation of laws and that of their agents; also for their own negligence and that of their agents. Given in alternate years.
12. State Boards of Pharmacy. The development of state boards of pharmacy in the United States and their legal functions, with special reference to their duties as examining bodies.
13. The History of Pharmacy. *Second semester; every other Wednesday at* 4. Professor KREMERS.
14. Pharmacopoeias and their Revision, with special reference to the U. S. Pharmacopoeia. *Second semester; every other Wednesday at* 4. Professor KREMERS.
20. Special Topics. When opportunity offers, lectures by persons not members of the faculty are arranged for.

MUSIC

EMERITUS PROFESSOR PARKER; PROFESSOR COLE; MR. BREDIN, AND MR. CASE.

The courses in music, except course 1, are open as electives to students, freshmen excepted, in any department of the University who show sufficient musical ability to pursue them with profit, and receive the same credit as similar courses in other departments of the University, except when otherwise specifically stated in the following explanatory statements.

Course 1 is open to election in the freshman year by candidates for the degree of Bachelor of Arts, in addition to a minimum of fourteen hours, but does not count as a part of the required 120 hours. For admission to course 1, no previous knowledge of

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music is required. This course will be found useful in strengthening preparation for the courses in harmony and counterpoint.

Those desiring to take course 2 must possess a knowledge of musical notation, a correct ear, and ability to read simple melodies at sight and to play a simple hymn-tune.

Courses 1, 2, and 3, or their equivalent, are required as preparation for course 6. This course is open only to those who show special aptitude for composition.

Students may take the lectures of the second semester of course 7 without having taken those of the first semester.

Course 9 is intended primarily for those who expect to teach in the public schools, either in the grades or high school. The course is open, however, to all students of the University except freshmen. No previous knowledge of music is required for entrance to this course. The work of the second semester is open without examination to those who have completed the work of the first semester and to Normal school graduates who have finished the course in music in the state Normal schools. Others are admitted only on examination.

Course 10 provides for advanced study in orchestral music, and is open to all who have had sufficient experience in such work to enable them to pass a satisfactory examination. Credit is given for the second year of study. Symphonies, classical overtures, and standard concert selections are studied.

Course 12, Principles of Music Education, consists of a series of lectures on the principles of education with special reference to the work of the supervision of music in the public schools.

Course 13 is cultural and informational in character, and presents, through lectures and musical illustrations, a study of the elements of intelligent enjoyment in music, from the standpoint of the listener rather than the performer. No technical knowledge of music is required for entrance to this course.

Course 14 is intended to follow course 13. It deals with a detailed critical analysis of some of the masterpieces of music-literature (opera, oratorio, symphony, pianoforte, and song). Performance of the works, in whole or in part, forms the basis for aural criticism and a thorough acquaintance with the works themselves. *One unit-hour.*

Course 15 offers to those who are properly qualified an opportunity to study the larger choral works in weekly rehearsal with

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the Madison Choral Union. Entrance tests are made on quality and range of voice, correctness of ear and ability to read moderately easy music. *One unit-hour credit is allowed for the whole year.*

Students may be admitted to advanced courses on examination.

Special students may substitute private lessons in piano playing or singing for one or more studies on recommendation of the Professor of Music, but without credit toward graduation, except as specified under course 8. See the statement of the School of Music. (See Index.)

Classes meet in the music lecture room, Assembly Hall.

Students who desire to become connected with the University Military Band should confer with the leader.

Primarily for Undergraduates

1. Musical Theory. *Throughout the year; M., W., at* 2. Mr. BREDIN.
2. Elementary Harmony. *Throughout the year; Tu., Th., at* 4. Professor COLE.
3. Advanced Harmony. *Throughout the year; M., W., at* 11. Professor COLE.
4. Counterpoint. *First semester; hours to be arranged upon consultation.* Emeritus Professor PARKER.
5. Double Counterpoint and Fugue. *Second semester; hours to be arranged upon consultation.* Emeritus Professor PARKER.
6. Musical Composition. *Throughout the year; M., W., at* 9, *subject to change.* Professor COLE.
7. History of Music. Lectures. *Throughout the year; Tu., Th., at* 3. Emeritus Professor PARKER.
8. Advanced Piano Playing, Singing, Organ, or Violin. Senior and junior years only. Hours and credit to be arranged with the instructor and Director of the School of Music, but not to exceed a total of ten semester hours.
9. Public School Music. *Throughout the year; M., W., at* 4, *subject to change.* Mr. CASE.
10. Advanced Study in Orchestral Music. *Throughout the year; W., at* 7 P. M. Mr. CASE.
12. Principles of Music Education. Lectures. *S. at* 11. Professors O'SHEA, ELLIOTT; Assistant Professors TRESSLER, DEARBORN; and Mr. CASE.

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13. Musical Appreciation. *First semester; Tu., Th., at* 11. Professor COLE.
14. Masterpieces of Music. *Second semester; Tu., Th., at* 11. Professor COLE.
15. Choral Music. *Throughout the year; Tu., at* 7:30 P. M. Professor COLE.

THE COURSE IN COMMERCE

W. A. SCOTT, Director. Professor of Political Economy.

THE PURPOSE OF THE COURSE

This course was opened to students at the beginning of the academic year 1900–01, for the purpose of supplying facilities for the training of young men who desire to enter business careers, especially in such fields as domestic and foreign commerce and banking, or branches of the public service, like the consular, in which a knowledge of business is essential. It was founded in the belief that in order to achieve the largest measure of success at the present time, and in order properly to perform his duties to himself and society, the business man needs not only a college education, but a course of study adapted to his peculiar needs. Justification for this belief was found in the magnitude, complexity, and rapidly changing character of modern industrial processes, and in the unfitness of the traditional college course properly to equip a young man for the most efficient work in this field. The modern business man needs training of the highest order, combined with a knowledge of the mathematical, physical and social sciences, and of their application to commerce and industry, and with a thorough command of his mother tongue and of at least one modern foreign language. The development of historical, political, economic, and scientific studies in recent times, and the improvement in our educational methods, have made possible the construction of a course of study which combines the necessary elements.

REQUIREMENTS FOR ADMISSION

Students will be admitted to this course on compliance with the conditions imposed for entrance to the College of Letters and Science. (See Index under Entrance Requirements.)

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Persons twenty-one years of age, who are not candidates for a degree, and who wish to take special studies, are permitted to enter as adult special students upon giving satisfactory evidence that they are prepared to profit by the courses desired.

Students who have satisfied all the requirements for entrance, but do not wish to be candidates for the degree, will be admitted to any of the studies of this course for which they are properly prepared.

PLAN OF THE COURSE OF STUDY

The studies of the course may be classified under the following heads:

I. *Foundational Studies.*

To this group belong the studies which are regarded as essential in a liberal education and as a necessary foundation for more specialized subjects to be pursued later on. They comprise courses in natural science, mathematics, English, foreign languages, history and economics. In natural science, physical geography and the physiography of the United States are required as a basis for economic geography, upon which in turn are built several specialized courses in applied economics. In addition students elect a year's laboratory course in physics or chemistry. The course in English is the general training course required of all freshmen in the University. Two foreign languages are required, the choice lying among French, German and Spanish. In these courses special attention is devoted to the acquisition of a speaking and writing command of the language for commercial purposes. Economics and history reveal the forces which produce changes in commercial conditions and institutions and the laws of such changes. The courses prescribed along these lines are the economic and social history of England, the elements of political economy, money and banking, and transportation.

II. *Professional Studies.*

The aim of these is to teach students to understand and actually to perform the various processes common to all branches of commerce. They comprise business correspondence, business forms of documents, accounting, auditing, salesmanship, advertising, credits and collections, and the management of factories

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and other business concerns. In these courses the study of general principles is always accompanied by practice work in a well equipped laboratory.

This class of studies is distributed throughout the course, beginning with the sophomore year. It is so correlated with the other lines of work as to receive re-enforcement from them and to furnish constant tests of their efficiency.

III. *Elective Studies.*

Besides the two classes of studies described above, which are with few exceptions prescribed, each student is obliged to elect a group of related courses and a sufficient number of other courses to complete the minimum prescribed for a bachelor's degree. These groups must be arranged at the beginning of the junior year on consultation with the Director, and are designed to give the student an opportunity to study intensively a particular field and to learn how to collect and utilize data bearing upon the problems of commerce and industry. His attainments in this direction are tested by a thesis prepared during the senior year. Among the fields available for group work and thesis writing are banking, transportation, accountancy, organization, insurance, corporation finance, foreign commerce, commercial law, and agricultural problems.

Approximately one-half of the student's time in the junior and senior years is available for free election from the great variety of courses offered in the various colleges and departments of the University. The opportunity here presented may be utilized to broaden the student's outlook into fields of knowledge not covered by the requirements of his course or to supplement the studies already pursued.

ARRANGEMENT OF STUDIES

FRESHMAN YEAR

Physical Geography, 3, (first semester); Economic Geography, 3, (second semester); German, French, or Spanish, 4; English, 3; Mathematics, 3; History 3; Gymnastics and Drill.

SOPHOMORE YEAR

Economic Geography, 3, (first semester); Foreign language (continued), 2, or second language, 4; Chemistry or Physics, 5;

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Elementary Economics, 3, (first semester); Money and Banking, 3, or Transportation, 3, (second semester); Elements of Accounting, 2; Free Electives, 2 or 0; Gymnastics and Drill.

JUNIOR YEAR

Foreign language (continued), 2, or second language (if not taken in sophomore year), 4; Theory and Practice of Accounting, 2; Elective Group, 3; Free Electives, 8 or 10.

SENIOR YEAR

Foreign language (continued), 2; Commercial Law, 3; Advanced Accounting and Auditing, 2; or Business Organization and Management, 2; Elective Group and Thesis, 4 or 6; Free Electives, 4 or 6.

DEPARTMENTS OF INSTRUCTION

*Business Administration**

a. The Elements of Accounting. *Throughout the year;* Section 1, *M., W.,* 2 *to* 4; Section 2, *Tu., Th.,* 2 *to* 4. Professor GILMAN, Mr. ATWELL, and assistants.

b. The Theory and Practice of Accounting. First semester's work may be taken without the second. *Throughout the year;* Section 1, *Tu., Th.,* 10 *to* 12; Section 2, *Tu., Th.,* 2 *to* 4. Professor GILMAN and assistants.

c. Advanced Accounting and Auditing. Must be preceded by 8a and 8b. *Throughout the year; Tu., Th.,* 10 *to* 12. Professor GILMAN.

d. Business Organization and Management. Open to seniors only. *Throughout the year; Tu., Th., at* 9. Professor GILMAN.

Political Economy

For detailed information regarding these courses see Index.

1. The Elements of Economics. *Repeated each semester; M., W., F., at* 8, 9, 10 *and* 11; *Tu., Th., S., at* 9. Professor ADAMS, Associate Professor TAYLOR, Dr. HESS, Dr. PRICE, and Mr. GRAY.

* The courses in this field are officially classified with those in Political Economy and designated as Political Economy 8a, 8b, 8c, and 8d.

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3. The Elements of Public Finance. *First semester; M., W., F., at* 9. Professor ADAMS.

5. The Elements of Money and Banking. *Repeated each semester; M., W., F., at* 9. Professor SCOTT and Dr. HESS.

7a. Economic Geography. A general survey. *Second semester; M., W., F., at* 10 *and* 11. Associate Professor TAYLOR.

7b. Economic Geography of the United States. *First semester; M., W., F., at* 8. Associate Professor TAYLOR.

8. See Business Administration.

9. Commercial Law. Open only to juniors and seniors of suitable preparation. *Throughout the year; M., W., F., at* 11. Professor GILMAN.

18. Senior Seminaries. For thesis students. Professors ADAMS, COMMONS, GILMAN and SCOTT; Associate Professor TAYLOR; Dr. HESS, and Dr. PRICE.

26. The Elements of Agricultural Economics. *Second semester; Tu., Th., at* 12. Associate Professor TAYLOR.

27. Historical and Comparative Agriculture. *First semester; Tu., Th., at* 12. Associate Professor TAYLOR.

29. Manufacturing Industries. *First semester; three times per week. Hours to be announced.* Dr. PRICE.

30. Elements of Statistics. One lecture, one quiz, and four hours laboratory work a week, for which a credit of three hours is given. *First semester; Tu., Th., at* 12. *Laboratory hours to be arranged.* Professor ADAMS.

31. Economic Statistics. One lecture, one quiz, and four hours laboratory work a week, for which a credit of three unit-hours is given. *Second semester; Tu., Th., at* 12. *Laboratory hours to be arranged.* Professor ADAMS.

33. Financial History of the United States. *Second semester; M., W., F., at* 8. Professor SCOTT.

34. The Money Market. Lectures and practical exercises in the interpretation of money market records and documents. *First semester; M., W., F., at* 12. Professor SCOTT.

35. Transportation and Communication. *Second semester; M., W., F., at* 8. Professor MEYER and Dr. HESS.

37a. Corporation Economics. *Second semester; M., W., F., at* 9. Dr. PRICE.

37b. Corporation Finance. Open only to those who have taken course 37a. (Omitted in 1909–10.) Dr. PRICE.

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37c. Speculation and Investment. Open only to those who have taken course 37a. *First semester; M., W., F., at* 10. Dr. PRICE.

38. Insurance Economics. *Second semester; M., W., F., at* 10. Dr. PRICE.

Political Science

17. Federal Administration. *Second semester; M., W., F., at* 9. Dr. MEYER.

18. International Law. *Throughout the year; Tu., Th., at* 11. Professor REINSCH.

19. Contemporary International Politics. *Second semester; M., W., F., at* 10. In connection with this course a series of public lectures on problems of international politics will be given. Professor REINSCH.

21. Colonial Politics. A study of the principal systems of colonial government. *First semester; M., W., F., at* 10. Mr. SHEPARD.

23. The Consular Service. *Second semester; Tu., Th., at* 10. Dr. MEYER.

History

For detailed information see Index.

4. History of the United States. A general survey, with emphasis on political history. This course, or an equivalent, must precede all advanced courses in American history.

4a. To the Presidency of Jackson. *First semester; M., W., F., at* 11. Professor FISH.

4b. From the Presidency of Jackson to the present time. *Second semester; M., W., F., at* 11. Professor FISH.

5. English History. *Throughout the year; Tu., Th., at* 10 *and a third hour in sections of quiz work.* Professor DENNIS and assistants.

15. Diplomatic History of the United States. *Throughout the year; Tu., Th., at* 10. Professor FISH.

English

For detailed information see Index.

1. Freshman English. English prose style. Composition. *Throughout the year; three hours per week.*

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German

For detailed information see Index.

2C. Modern Prose, narrative and dramatic, and one classical drama. *Throughout the year; Tu., W., Th., F., at* 9. Mr. BRUNS.

3C. Reading, Conversation, and Composition. *Throughout the year; Tu., Th., at* 11. Dr. FEISE.

4C. A continuation of the work of the preceding year, the texts being chosen chiefly to illustrate German history, political, cultural, and literary. *Tu., Th., at* 9. Dr. MORGAN.

5C. The work of this course will be of a strictly practical character, being devoted chiefly to oral and written work on topics connected with the actual demands of a commercial career. *Throughout the year; Tu., Th., at* 11. Assistant Professor PROKOSCH.

French

For detailed information see Index.

6C. Elementary Course. *Throughout the year; Tu., W., Th., F., at* 9. Mr. CATTELL.

17C. Conversation, Composition, and Reading. *Throughout the year; Tu., Th., at* 11. Mr. CATTELL.

29C. Conversation, Commercial Correspondence, and Reading. *Throughout the year; twice a week.* Mr. CATTELL.

30C. Conversation, Commercial Correspondence, and Reading. A continuation of course 29C. *Throughout the year; twice a week.* (Omitted in 1909–10.) Mr. CATTELL.

Spanish

2EC. Elementary. Giese's *First Spanish Book*, and other easy prose. *Throughout the year; four hours a week; in three sections; at* 8, 9, *and* 10. Mr. COOL, Mr. MICHELL, and Mr. MILLER.

6C. Conversation, Composition, and Reading. Special attention is devoted to the vocabulary of everyday life. *Throughout the year; Tu., Th., at* 11. Mr. COOL.

7C. Conversation, Commercial Correspondence, and Reading. Special attention is devoted to the vocabulary of commerce. *Throughout the year; W., F., at* 11. Mr. COOL.

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8C. Conversation, Commercial Correspondence, and Reading. Continuation of course 7C. *Throughout the year; twice a week.* Mr. COOL.

Algebra

1. Algebra. Theory of indices, logarithms, limits, arrangements and groups, and progressions. *First semester; three times a week.* Dr. ALLEN, Dr. BIRKHOFF and Mr. SIMPSON.
7. Commercial Algebra. Theory of probabilities, series, and the application of mathematics to insurance and finance. *Second semester; three times a week.* Dr. ALLEN, Dr. BIRKHOFF and Mr. SIMPSON.

Physics

1. General Lectures and Introductory Laboratory Practice. *Lectures; M., Tu., W., Th., at* 12. *One recitation a week at an hour to be arranged. Laboratory practice twice a week.* Professor SNOW and assistants.

Chemistry

7. General Chemistry. Lectures and laboratory work. *Throughout the year; five hours a week.* Professor LENHER and assistants.

Geology

For detailed information see Index.

4a. Physical Geography. *First semester; M., W., F., at* 10. Assistant Professor MARTIN.

COMMERCIAL COURSE FOR ENGINEERS

The College of Engineering offers a five-year course which permits a combination of the studies of the various engineering courses with the essential studies of the Course in Commerce. Students making this combination will take the engineering studies as prescribed, for which see Index under Engineering, and the studies of the Course in Commerce as follows:

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FRESHMAN YEAR

Physical Geography and Economic Geography, 3.

SOPHOMORE YEAR

Economic Geography, 3; Elementary Economics *(second semester)*, 3.

JUNIOR YEAR

Money and Banking *(first semester)* and Transportation *(second semester)*, 3; Elective Group, 3.

SENIOR YEAR

Elective Group, 3; Business Administration, 3.

FIFTH YEAR

Business Administration, 3; Commercial Law, 3.

At the end of the fifth year the appropriate engineering degree will be conferred. Students who so desire may, during the senior year, write a thesis in connection with their elective group in Commerce, and receive the degree of Bachelor of Science.

GRADUATE STUDENTS

Graduates of this or other colleges and universities of good standing will be admitted to this course, and arrangements will be made so that they may take its peculiar studies in two years, or in less time, provided they have already pursued some of them in their undergraduate courses.

PREPARATION OF TEACHERS

Students who wish to prepare themselves to teach commercial subjects in secondary schools will be aided in so arranging their elective work as to attain this end. Special facilities for pedagogical practice will be given such students in connection with the course in Business Administration, and work in addition to that prescribed may be arranged in subjects of especial importance to teachers.

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SPECIAL LECTURES

Special lectures are provided from time to time for the purpose of acquainting students with present business conditions and opportunities. So far as possible, men representing the chief business enterprises of the United States are secured for this purpose.

REQUIREMENT FOR GRADUATION

Students who have successfully completed the above course of study will be admitted to graduation and will receive the degree of Bachelor of Arts.

THE COURSE IN PHARMACY

EDWARD KREMERS, Director, Professor of Pharmaceutical Chemistry.

THE OBJECT OF THE COURSE

The prime object of the Course in Pharmacy is to furnish a thoroughly scientific foundation for the pursuit of the profession of pharmacy. The elements of the fundamental natural sciences, chemistry, botany, or biology, and physics must first be studied before their application to pharmacy can rationally be considered. This is as true for pharmacy as for any other applied science or art. In pursuing these general studies the pharmacy students have the advantage of close association with students from other courses. This implies that in these studies they must be able to keep abreast with students who are graduates of accredited high schools. The best preparation for college, therefore, which the prospective pharmacy student should seek is not that of the shops, but that of a good high school or academy of like rank. The University does not demand practical experience for admission to the courses in pharmacy, but desires such preparation as will best fit for college or university work.

The general study of these fundamental sciences is followed by more or less specialized courses. General chemistry, inorganic and organic, qualitative and quantitative analysis, are followed by pharmaceutical chemistry, and applied chemical analysis; general botany by vegetable histology and anatomy of drugs;

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general physics by pharmaceutical technique. These somewhat specialized studies, in turn, not only lay the foundation for the study of the more strictly applied courses in practical pharmacy and pharmacognosy, but also prepare the student for thesis work.

The student who can spend only two years at the University is compelled to take up the more technical studies of his course before he has laid a satisfactory foundation. Such a compromise is outlined under the caption, Courses of Study. The three-year student, as a rule, finds time to pursue other studies besides those outlined above, *e g.*, German, physiology, or bacteriology, etc. The four-year student has the great advantage of supplementing his high school preparation during the freshman and sophomore years by acquiring a reading knowledge of German and French, and by the study of university mathematics, all of which studies are of the greatest importance when the more advanced work of the natural sciences is taken up during the junior and senior years.

Special attention is called to the four-year course offered to graduates of accredited high schools. This course was created in order to accommodate those students who desire to obtain a general scientific education and to include in their course the pharmaceutical studies, and with the hope of stimulating a broader pharmaceutical education. For the more applied courses special laboratories have been equipped.

Like the sister profession, medicine, pharmacy, is in need, not only of the general practitioner, but also of the specialist. To meet the demands of such, the University offers graduate courses. Graduates who desire to prepare themselves as chemists for manufacturing establishments, as analytical, food or sanitary chemists, or as bacteriologists, will find that the graduate work in the Course in Pharmacy, as well as the other departments of the University, offers excellent opportunities for advanced and more specialized study. Special lines of research can also be pursued in various departments by those who desire to work for a higher degree. The attention of advanced students is especially called to the graduate work. (See Index.)

Laboratories

A description of the various general laboratories of the University may be found by reference to the Index.

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THE PHARMACEUTICAL LABORATORIES. These laboratories are located in the west wing of the second floor and the east wing of the third floor of the new Chemistry Building. Their equipment is similar to that of the other laboratories in the same building.

Collections

The collections of the University, including the drug cabinet, are described elsewhere. See Index under Collections.

Libraries

For a statement as to general library facilities at the University and in the city of Madison, see Index under Library. The department library for ready reference is now housed in the library of the new Chemistry Building, a large, well lighted and equipped room on the third floor, unusually well supplied with reference works and the best periodicals. The other department libraries, as well as the general library, are all on the same campus and, therefore, easy of access.

Terms of Admission

The requirements for admission to the several colleges of the University are described on previous pages. See Index under Admission.

The special requirements for admission to the two-year pharmacy course are herewith repeated.

I. Graduates from high schools are admitted without examination and without practical experience in a drug store.

II. Non-graduates are admitted if they comply with the following requirements:—

1. They must be at least eighteen years of age.

2. They must present satisfactory certificates of *at least* one year's attendance from some standard high school, or its equivalent from a similar educational institution.

3. The time intervening between the secondary education and the college course should have been spent in a drug store where physicians' prescriptions are regularly compounded.

Degrees

The first degrees given in pharmacy are that of *Graduate in Pharmacy*, upon completion of the two-year course, and that of

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Bachelor of Science, Pharmacy Course, conferred upon candidates who have successfully met the requirements of the four-year course.

The degree of *Master of Pharmacy* is conferred as a second degree upon graduates in pharmacy.

The degrees of *Master of Science* and *Doctor of Philosophy*, are conferred as higher degrees upon candidates who have a baccalaureate degree.

Fees and Expenses

The tuition and laboratory fees and an estimate of expenses for board and lodging are given on previous pages. (See Index.)

COURSES OF STUDY

Two-Year Course

FIRST YEAR. FIRST SEMESTER

Chemistry 3.* General Chemistry. The laboratory work accompanying this course is especially designed for pharmacy students. *Eight unit-hours.* Professor KAHLENBERG, Assistant Professor WALTON, and Mr. DUMEZ.

Biology 1. General Biology.† Introductory to both botany and zoology, and required as preliminary to all work in either department. *Two recitations, or lectures, and eight hours' laboratory work a week.* Professor HARPER, Professor ALLEN, and assistants.

Botany 35. The Collection and Commerce of Crude Drugs. Laboratory and field work supplemented by lectures and recitations. *One unit-hour.* Assistant Professor DENNISTON.

Pharmacy 1. Laboratory Technique. The principles and practice of pharmaceutical operations, such as comminution, expression, decantation, filtration, maceration, percolation, diffusion, dialysis, crystallization and precipitation. *Three unit-hours. W., F., at* 11. Assistant Professor FISCHER and Mr. DUMEZ.

FIRST YEAR. SECOND SEMESTER

Chemistry 3. General Chemistry continued as a three unit-hour study during the entire semester, with qualitative analysis

* The figures refer to the numbers of the course as given in the statements under Departments of Instruction.

†Students who have had a satisfactory high school course in Biology can substitute an elective for this semester's work.

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as five units during the first half of the semester. *Professor* KAHLENBERG and Mr. DUMEZ.

Chemistry 15. Quantitative Analysis. *Second half of semester; daily.* Professor LENHER and Mr. DUMEZ.

Chemistry 20b. Organic Chemistry for Pharmacy students. *Two unit-hours.* Recitations and laboratory work. Assistant Professor KOELKER and Mr. DUMEZ.

Botany 30. Morphology and Classification of the Flowering Plants. An elementary course designed primarily for students in Pharmacy. The life histories and ecology of seed plants, with a comparative study of the structure of the principal families and the identification of common species. Field work will be an important feature. Excursions on Saturdays. *M., Tu., W., Th., F.,* 8 *to* 10. Assistant Professor DENNISTON and Mr. ARZBERGER.

Pharmacy 1. Laboratory. Technique. Continuation of the work of the first semester. (See above.)

SECOND YEAR. FIRST SEMESTER

Chemistry 6. Advanced Inorganic Chemistry. Lectures and recitations, *Tu., Th., F., at* 10; *laboratory work daily.* Professor KREMERS and Mr. SCHULZ.

Chemistry 40. Plant Chemistry. As a three unit-hour study supplementary to pharmacognosy. Recitations, *M., at* 10; *two laboratory periods.* Professor KREMERS and Mr. SCHULZ.

Botany 5. Vegetable Histology. A systematic study of the tissues of the phanerogams and ferns. Use of reagents and stains, section cutting and mounting. Assistant Professor DENNISTON and Mr. ARZBERGER.

Botany 32. Pharmacognosy. This course presents to the student the main facts of the natural history of drugs, and the plants producing them. *Twice a week.* Assistant Professor DENNISTON.

Pharmacy 2. Pharmaceutical Technology. The study and manufacture of galenical and other preparations; waters, tinctures, fluid extracts, spirits, oleo-resins, etc.; also of pills, suppositories, ointments, plasters, etc. Lectures and recitations, *Tu., Th., at* 11; *three laboratory periods.* Assistant Professor FISCHER and Mr. TITUS.

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SECOND YEAR. SECOND SEMESTER

Chemistry 27. Advanced Organic Chemistry. Lectures and recitations, *Tu., Th., F., at* 10; *laboratory work daily.* Professor KREMERS and Mr. SCHULZ.

Chemistry 40. Plant Chemistry. Continued from first semester. Professor KREMERS and Mr. SCHULZ.

Chemistry 45. Alkaloid Assay. *One unit-hour credit.* Assistant Professor FISCHER and Mr. TITUS.

Botany 31. Microscopical Examination of Drugs and Food Products. The object of this course is to study and illustrate the methods of identifying powdered drugs and food products and detecting adulterations. *Three unit-hours credit.* Assistant Professor DENNISTON.

Botany 32. Pharmacognosy. Continuation of first semester's work. Assistant Professor DENNISTON.

Pharmacy 3. Prescription Practice. The study of the prescription; practice in the compounding of physicians' prescriptions; also the study of physical, chemical and therapeutical incompatibilities. *Lectures and recitations, Tu., Th., at* 11; *two laboratory periods.* Assistant Professor FISCHER and Mr. TITUS.

Four-Year Course

Students who desire to include pharmaceutical studies as a part of their general college education will have to elect the prerequisite studies enumerated below to accomplish this end. Such a course, if to lead to the degree of *Bachelor of Science, Pharmacy Course*, must include courses 1, 2, and 3 in Pharmacy, and course 22 in Botany.

Basal sciences: Chemistry 3, 15, 20b or their equivalents. Botany 1, and 20 or its equivalent. Physics 1. These should be taken during the first and second years.

Advanced sciences: Chemistry 6 and 27. Botany 5 and 21. These courses should be taken during the third year, in order that the courses in Pharmacy and Pharmacognosy mentioned above may be taken during the fourth year.

The language requirements of this course are English 1, French 1, and German 2S, which should be taken during the first and second years.

The major study and thesis may be taken in chemistry, botany, pharmacy, or any department in which the student is sufficiently

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prepared to do such work. For the rules governing the major study and thesis see Index under Major Study.

Additional electives sufficient to make 120 unit-hours may be chosen upon consultation with the adviser for Pharmacy students.

THE COURSE IN CHEMISTRY

LOUIS KAHLENBERG, Director, Professor of Chemistry.

THE PURPOSE OF THE COURSE

The primary purpose of this course is to offer facilities for the training of those who desire to become chemists. The demand for competent chemists has very greatly increased in recent years. Not only has there been a greater call for able teachers of chemistry for high schools, colleges and universities, but an unusual demand has arisen for chemists of ability for agricultural experiment stations, hygienic laboratories, health and sanitary departments of municipalities, food testing laboratories, and industries engaged in the preparation of foods and other articles of consumption, textile and other fabrics, metallurgical products, and building materials. The cause for this demand is readily discerned. The growing realization that the best way to combat disease is to live under hygienic conditions and use wholesome food, proper clothing and shelter has made physiological chemists, food chemists, and sanitary chemists indispensable. The fact that careful study of the soil in its relation to the crops it is to produce has greatly increased both the quantity and quality of the yield of the land, and that a proper study of the breeding and feeding of animals raised on the farm has added very materially to the wealth and well-being of the nation, has made soil and agricultural chemists necessary. And again, since the exploitation of the more readily accessible resources of our country, such as its wealth in timber and minerals, for example, is fairly well accomplished, attention is naturally being directed more and more toward manufacturing articles from materials whose value is not obvious at sight, materials that have indeed often been discarded as worthless. It is in this work that the services of the analytical and industrial chemist are an absolute necessity. Naturally these demands for chemists have also resulted in an increased call for teachers of chemistry. Nor is the

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need of chemists of temporary character, for obviously activity in the various lines mentioned will grow of necessity and increase the demand for men and women skilled in chemistry. Indeed, in many of our industries it is already realized that it is necessary to have the service of a chemist continually in order to properly inspect the raw materials bought, to control and improve the process of manufacture so as to avoid waste of power and material, and to test the grade of the finished article.

It is not the purpose of this course to prepare chemists for each individual industry; for that would be well-nigh impossible, since it requires special practical experience to become proficient in any particular line of work. The aim is rather to give the student a training in the fundamental principles of chemistry and the cognate sciences, which, of course, also necessitates a proper grounding in mathematics, French and German. With this preparation a chemist will readily be able to adapt himself to any special industry with which he may later on be connected.

Special attention is called to the fact that chemistry offers opportunities for women as well as for men. Not only in teaching chemistry in high schools and colleges, but also in lines like analytical, physiological, sanitary and food chemistry, there is a growing field of work for women.

REQUIREMENTS FOR ADMISSION

Students will be admitted to this course on compliance with the conditions imposed for entrance to the College of Letters and Science. See Index under Admission.

Persons twenty-one years of age, who are not candidates for a degree, and who wish to take special studies, are permitted to enter as adult special students upon giving satisfactory evidence that they are prepared to profit by the course desired.

Students who have satisfied all the requirements for entrance, but do not wish to be candidates for a degree, will be admitted to any of the studies of this course for which they are properly prepared.

PLAN OF THE COURSE OF STUDY

Six courses of study have been outlined, namely, a general course, a course for industrial chemist, a course for agricultural chemist, a course for soil chemist, a course for physiological

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chemist, and a course for food chemist. The latter course is also well adapted for those fitting themselves for sanitary work in hygienic laboratories. The general course is intended for those desiring to become analytical chemists, and those that prefer a course relatively free from biological studies and work which is strictly applied in character. The first two courses are almost free from biological work, containing only a short course in bacteriology which it is extremely desirable that every chemist should have. The other four courses are primarily distinguished from the first two in that they contain a considerable amount of biology and consequently present less opportunity for further work in other lines.

The work for the first year is the same for all of the courses. It is therefore detailed in connection with the general course only. It will be observed that differentiation in the various lines begins in the second year of the general course, the main difference being, as already stated, that biology is introduced in the last four courses.

In all the courses, general inorganic, analytical, organic and physical chemistry are required. Physics, mathematics consisting of trigonometry and analytical geometry, and a course in mechanical drawing are also required of all. The English is the regular course required of all freshmen in the College of Letters and Science. Both German and French are required; these languages must be pursued in not less than one year courses. A student coming prepared in but one of these languages would naturally continue work in that language during the freshman year. The equivalent of at least course 2S in German and course 1 in French is required for graduation. The special courses required in connection with each of the six courses are selected because they are calculated to fit the student for the definite end in view. Each course contains a certain number of hours for free electives, and while freedom of election is not restricted, the student is strongly urged to choose his electives from subjects outside of the natural sciences.

In each of the courses, 144 unit-hours are required for graduation. As the work outlined is necessarily difficult in character, students would often find it advantageous to absolve a part of the required studies during one or more summer sessions.

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COURSES OF STUDY

General Course

First year: General Chemistry, 5; Mathematics, 3; German or French, 4; English, 3; Mechanical Drawing, 3.

Second year: *First semester.* Quantitative Analysis, 6; German or French, 4; Physics, 5; Calculus or Mineralogy, 3; *second semester.* Calculus or Bacteriology, 3.

Third year: Organic Chemistry, 5; Physical Chemistry, 5; German or French, 4; Electives, 4.

Those that took calculus in the second year must take Mineralogy 3 in the first semester and Bacteriology 3 in the second semester, which leaves for them but one hour as elective for each semester.

Fourth year: *First semester.* Chemistry Thesis, 2; Water and Gas Analysis, 2; Proximate Organic Analysis, 3; History of Chemistry, 2; Electives, 3. *Second semester.* Chemistry Thesis, 2; Chemistry (elective), 5; Fire Assay, 2; Electives, 9.

Course for Industrial Chemist

The first and second years are the same as in the general course.

Third year: Organic Chemistry, 5; Physical Chemistry, 5; German or French, 4; Technical Fuel and Gas Analysis, 2; Electives, 2.

Fourth year: *First semester.* Chemistry Thesis, 2; Water Analysis, 1; Proximate Organic Analysis, 3; Industrial Chemistry, 3; History of Chemistry, 2; Electives, 7. *Second semester.* Chemistry Thesis, 2; Chemical Machinery, 2; Fire Assay, 2; Bacteriology, 3; Chemical Manufactures, 5; Electives, 4.

Course for Agricultural Chemist

Second year: Quantitative Analysis, 4; German or French, 4; Biology, 5; Physics, 5.

Third year: *First semester.* German or French, 4; Organic Chemistry, 5; Bacteriology, 3; Electives, 6. *Second semester.* German or French, 4; Organic Chemistry, 5; Agricultural Chemistry, 5; Agricultural Bacteriology, 3 or 5, or Electives, 4.

Fourth year: *First semester.* Physical Chemistry, 5; Agri-

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cultural Chemistry, 5; Agricultural Chemistry Thesis, 2; Electives, 6. *Second semester.* Physical Chemistry, 5; Soils, 5; Agricultural Chemistry Thesis, 2; Dairy Chemistry, 3; Electives, 3.

Course for Soil Chemist

Second year: *First semester.* Quantitative Analysis, 6; German or French, 4; Physics, 5; Bacteriology, 3. *Second semester.* Quantitative Analysis, 5; Soils, 5; Physics, 5; Agricultural Bacteriology, 3.

Third year: *First semester.* German or French, 4; Organic Chemistry, 5; Soil Chemistry, 4; Systematic Botany, 2; Electives, 3. *Second semester.* German or French, 4; Organic Chemistry, 5; Soil Chemistry, 4; Mineralogy, 3; Electives, 2.

Fourth year: *First semester.* Soils Thesis, 2; Physical Chemistry, 5; History of Chemistry, 2; Geology, 5; Electives, 4. *Second semester.* Soils Thesis, 2; Physical Chemistry, 5; Soil Physics, 2; Agricultural Chemistry, 5; Electives, 4.

Course for Physiological Chemist

Second year: Same as for agricultural chemist.

Third year: *First semester.* German or French, 4; Organic Chemistry, 6; Physiology, 3; Physical Chemistry, 5. *Second semester.* German or French, 4; Organic Chemistry, 5; Physiological Chemistry, 4; Physical Chemistry, 5.

Fourth year: *First semester.* Bacteriology, 5; Advanced Physiological Chemistry, 4; Toxicology, 3; Physiological Chemistry Thesis, 2; Electives, 4. *Second semester.* Bacteriology, 5; Seminary Physiological Chemistry, 1; Histology of Foods, 2; Chemistry of Foods, 5; Physiological Chemistry Thesis, 2; Electives, 3.

Course for Sanitary Chemist or Food Chemist

Second year: Same as for agricultural chemist, except that in the second semester Biology 5 is replaced by Bacteriology 3 and Biology of Water Supplies 3.

Third year: *First semester.* German or French, 4; Organic Chemistry, 6; Vegetable Histology, 3; Physical Chemistry, 5. *Second semester.* German or French, 4; Organic Chemistry, 6; Microscopic Examination of Foods and Drugs, 3; Physical Chemistry, 5.

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Fourth year: *First semester.* Thesis in Foods or Sanitary Chemistry, 2; Water and Gas Analysis, 2; Proximate Organic Analysis, 3; Toxicology, 3; History of Chemistry, 2; Electives, 6. *Second semester.* Thesis in Food or Sanitary Chemistry, 2; Food Chemistry, 5; Physiological Chemistry, 4; Elective, 7.

DEPARTMENTS OF INSTRUCTION

Chemistry

For detailed information regarding these courses see Index.

1. General Chemistry, including Qualitative Analysis. *Throughout the year; daily.* Professor KAHLENBERG, Assistant Professor WALTON, and assistants.
4. Thesis. Work for the baccalaureate thesis may be arranged in any line of chemistry in which the student has sufficient preparation. *Credit two hours per semester.*
7. History of Chemistry. *First semester; two lectures or recitations per week.* Professor KREMERS.
11. Quantitative Analysis. *Laboratory course accompanied by weekly lectures.* Professor LENHER, Dr. HALL, and Mr. MOTT.
12. Quantitative Analysis. An advanced laboratory course. Professor LENHER.
13. Gas Analysis. *First semester.* Dr. HALL.
14. Water Analysis. *First semester.* Dr. HALL.
19. Proximate Organic Analysis. *First semester; three unit-hours.* Assistant Professor FISCHER.
20. Organic Chemistry. Lectures and laboratory work. *Throughout the year; daily.* Assistant Professor KOELKER, and Mr. MCDANIEL.
30. Physical Chemistry. Lectures and laboratory work. *Throughout the year; daily. Lectures, M., W., at 8. Three periods of laboratory work per week.* Professor KAHLENBERG and Dr. MATHEWS.
46. Chemistry of Foods and their Adulterations. *Second semester; daily.* Assistant Professor FISCHER.
50. Assaying. *Second semester; two unit-hours.* Professor LENHER, and Mr. MOTT.

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Chemical Technology

For detailed information regarding these courses see Index.

1. Chemical Machinery and Appliances. *Second semester; two lectures per week.* Professor BURGESS.
2. Technical Fuel, Gas and Oil Analysis. *First semester; two periods of laboratory work per week.* Assistant Professor DICKERMAN, and Mr. KOWALKE.
4. Chemical Manufacture. Laboratory course. *Second semester; daily.* Assistant Professor DICKERMAN, and Mr. KOWALKE.
5. Industrial Chemistry. *First semester; three lectures or recitations per week.* Assistant Professor DICKERMAN.

Agricultural Chemistry

For detailed information regarding these courses see Index.

1. Agricultural Chemistry. *Second semester; lectures, Tu., Th., at* 9. Professor HART.
2. Agricultural Analysis. *Second semester; two three-hour laboratory periods per week; Tu., Th.,* 2 *to* 5. Mr. TOTTINGHAM.
4. Dairy Chemistry. *Lectures, M., at* 9. *Laboratory work, Tu., Th.,* 2 *to* 5. *Second semester; three unit-hours.* Professor HART, and Mr. TOTTINGHAM.
5. Animal Chemistry. *Lectures, F., S., at* 11; *and two three-hour periods of laboratory work per week. First semester; daily.* Professor HART, and Dr. MCCOLLUM.
9. Thesis in Agricultural Chemistry. *Throughout the year; two unit-hours.* Professor HART, and Professor WOLL.

Soils

For detailed information regarding these courses see Index.

1. Introductory Lecture and Laboratory Course. *Second semester; daily.* Professor WHITSON.
2. Soil Analysis. A laboratory course. *First semester; four unit-hours.* Assistant Professor STODDART.
5. Thesis. *Throughout the year; two unit-hours.* Professor WHITSON, and Assistant Professor STODDART.
21. Soil Chemistry. *Second semester; two lectures and two periods of laboratory work.* Assistant Professor STODDART.

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22. Soil Physics. *Second semester; two lectures per week.* Mr. JONES.

Physiological Chemistry

For detailed information regarding these courses see Index.

4. Physiological Chemistry. Lectures and laboratory work. *Second semester; four unit-hours.* Assistant Professor BRADLEY.
10. Advanced Physiological Chemistry. *First semester; four unit-hours.* Assistant Professor BRADLEY.
11. Toxicology. *First semester; lectures and laboratory work; three unit-hours.* Professor LOEVENHART.
12. Seminary in Physiological Chemistry. *Second semester; one hour per week.* Assistant Professor BRADLEY.

Mathematics

For detailed information see Index.

2. Trigonometry. *First semester; three times a week.* Assistant Professor SKINNER.
3. Analytic Geometry. *Second semester; three times a week.* Dr. ALLEN.
5. Calculus. *Throughout the year; three times a week.* Professor VAN VLECK, and Assistant Professor DOWLING.

Mechanical Drawing

For detailed information see Index.

1. Elements of Drawing. *First semester; three two-hour periods per week.* Professor PHILLIPS, and assistants.
2. Elements of Drawing. *Second semester; three two-hour periods per week.* Professor PHILLIPS, and assistants.

Physics

1. General Lectures and Introductory Laboratory Practice. *Lectures, M., Tu., W., Th., at* 12. *One recitation hour to be arranged. Laboratory work twice a week.* Professor SNOW, and assistants.

Geology

For detailed information see Index.

1. General Geology. *First semester; daily lectures at* 12. Professor LEITH, and Assistant Professor BLACKWELDER.

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7. Short Course in Mineralogy. *First semester; three unit-hours.* Assistant Professor WINCHELL.

Biology

For detailed information see Index.

1. General Biology. The first semester is devoted to botany and the second semester to zoology. *Lectures, M., W., at* 3. *Four laboratory periods per week.* Professor HARPER, Assistant Professor HOLMES, and assistants.

Botany

For detailed information see Index.

5. Vegetable Histology. *First semester; three unit-hours.* Assistant Professor DENNISTON.
8. Histology of Foods. *Second semester; two unit-hours.* Assistant Professor DENNISTON.
20. Systematic Botany. *First semester; two unit-hours.* Professor HARPER.
21. Microscopic Examination of Foods and Drugs. *Second semester; three unit-hours.* Assistant Professor DENNISTON.

Bacteriology

For detailed information see Index.

1. General Bacteriology. *Second semester; three unit-hours. Lectures, Tu., Th., at* 11. Associate Professor FROST.
2. Medical Bacteriology. *First semester; daily.* Professor RAVENEL.
4. Topical Work in Bacteriology. *Second semester; daily.* Professor RAVENEL, and Associate Professor FROST.
8. Biology of Water Supplies. *Second semester; three unit-hours.* Professor RAVENEL, Dr. FULLER, and Mr. BOWLES.
17. Agricultural Bacteriology. *Second semester; three unit-hours.* Professor RAVENEL, and Assistant Professor HASTINGS.

Physiology

For detailed information see Index.

5. Physiology. *First semester; three unit-hours.* Professor ERLANGER.

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English

For detailed information see Index.

1. Freshman English. English prose style. Composition. *Throughout the year; three hours per week.*

French

For detailed information see Index.

1. Elementary French. Grammar, reading and composition. *Throughout the year; four unit-hours.* Assistant Professor REED, and instructors.
4. Elementary French. For students that have had the equivalent of one year of French in high schools. *Throughout the year; Tu., W., Th., F., at* 12. Mr. SCHLATTER.
10. Second Year French. Reading and grammar. *Throughout the year; three hours a week.* Professor SMITH; Assistant Professors GAY, REED, and instructors.

German

For detailed information see Index.

1. Beginners' German. Grammar and easy readings with practice in speaking and writing. *Throughout the year; four hours a week.* Assistant Professor EVANS.

2S. Second Year German. *Throughout the year; Tu., W., Th., F., at* 11. Dr. HAERTEL.

3S. Scientific German. *Throughout the year; W., F., at* 9. Assistant Professor STERLING.

Information concerning additional courses in any of the departments of instruction may be found by referring to the Index.

LABORATORIES

A description of the various scientific laboratories of the University may be found by referring to the Index.

LIBRARIES

The general library facilities are described on p. 53. The various scientific departments have excellent reference libraries in connection with the laboratories. These departmental libraries contain those books and periodicals which are most frequently used. In chemistry and allied sciences the University offers most excellent library facilities.

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REQUIREMENT FOR GRADUATION

Students who have successfully completed any of the above courses of study will be admitted to graduation from the University and will receive the degree of Bachelor of Science.

CHARGES AND FEES

For the fees to be paid in this Course and in the various scientific laboratories see Index under Fees.

COURSES PREPARATORY TO JOURNALISM

WILLARD G. BLEYER, Chairman, Assistant Professor of Journalism.

PURPOSE AND PLAN OF THE COURSES

The courses preparatory to journalism have been selected and arranged with the purpose of indicating to students preparing for journalistic work the studies best adapted to give the broad training necessary for the successful pursuit of this profession. The increasing demand by editors of newspapers and periodicals for college graduates, indicates the recognition of the value of a college course as preparation for journalism. It is believed that the value of such a course may be greatly increased by having it include those subjects, a knowledge of which is essential for journalism of the best type.

The courses included in the list are of three kinds: (1), those designed to familiarize the student with present social, political, and industrial conditions in the light of their history and development, as well as with the literature of his own and other languages; (2) those designed to develop the power of expressing his ideas effectively in writing; (3) those intended to give the necessary technical instruction in the history, development, organization, and methods of modern journalism. The course of study has been arranged in the belief that the greater part of the time should be devoted to a study of the subjects of the first group, such as history, political science, economics, sociology, philosophy, psychology, language, and literature, which are fundamental to journalistic work. Instruction in the principles of effective written expression, and practice in writing are given by the courses in composition.

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The technical work includes courses in newspaper writing of the several kinds and in newspaper editing, with a consideration of the methods of practical journalism, the history and development of the American press, and a study of the organization and management of a modern newspaper. Instruction is also given in the law of the press, including the law of copyright, literary property, libel, privileged publications, and other topics relating to the publication of books and newspapers. In connection with the course in newspaper writing special lectures on various phases of journalistic work are given by newspaper men in active service.

TECHNICAL AND TRADE JOURNALISM

Although the courses outlined are designed primarily for those preparing for newspaper and editorial work, the arrangement of them can be readily modified to meet the needs of students desiring preparation for technical or class journalism. Students in the College of Letters and Science may elect courses in the College of Mechanics and Engineering, the College of Law, and the College of Agriculture, as well as in the Course of Pharmacy and the Course in Commerce in the College of Letters and Science. In the same manner students in the Colleges of Mechanics and Engineering, Agriculture, and Law, may elect courses in the College of Letters and Science, such as those in newspaper writing and editing. The Course in Commerce in the College of Letters and Science includes a number of special groups of studies designed to furnish opportunity for a more thorough study of the various principles of commerce and industry, such as banking and finance, transportation, manufacturing industries, and agricultural industries. By combining studies in commerce, agriculture, engineering and other technical subjects with those outlined in preparation for journalism, students can obtain the necessary preparation for practically all lines of technical and trade journalism.

A course in agricultural journalism is given for those who desire special preparation for that kind of work.

STUDENT PUBLICATIONS

The students of the university edit and manage a number of publications all of which offer excellent opportunities for

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practical experience in various kinds of journalistic work. Places on the editorial and business staffs of these publications are awarded for the most part on a basis of literary and executive ability, and are open to practically all students of the university. The Daily Cardinal, published as an afternoon newspaper, is edited by a staff organized from the students in the courses in journalism, under the direction of the chairman of the Courses Preparatory to Journalism. Students in journalism are thus given systematic practice in all the details of newspaper making. The Sphinx, an illustrated humorous bi-weekly; the Wisconsin Literary Magazine, a monthly devoted to short stories, verse, and essays; and the Badger, the university annual edited and published by the members of the junior class, all give opportunity for a variety of experience in journalism. The Wisconsin Engineer, a quarterly edited and published by the students of the College of Engineering, and the Student Farmer, a monthly edited and managed by the agricultural students, furnish practice for those interested in technical and trade journalism.

UNIVERSITY PRESS CLUBS

Three press clubs are maintained by the students interested in journalism. The University Press Club, which was organized in 1892, is composed of the men in the institution who have done, are doing, or are preparing to do journalistic work. The meetings, which include a series of monthly dinners, are frequently addressed by newspaper and magazine editors. The Woman's Press Club consists of the women in the university and in Madison interested in journalism. Bi-weekly meetings are held throughout the year at which addresses are given by newspaper and magazine writers. The Hoard Press Club was organized in 1908 by a number of students in the College of Agriculture. The weekly meetings have been addressed by editors of agricultural papers.

FELLOWSHIP AND SCHOLARSHIPS

It is proposed to establish an alumni graduate fellowship in journalism of four hundred dollars, in connection with the Alumni Magazine. Several undergraduate scholarships in journalism offered by the Daily Cardinal Association are to be awarded annually to students in the classes in journalism for excellent work.

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GENERAL REQUIREMENTS

Students will be admitted to these courses on compliance with the conditions imposed for entrance to the College of Letters and Science. (See Index under Requirements for Entrance.)

Persons over twenty-one years of age, who are not candidates for a degree, and who wish to take special studies, are permitted to enter as adult special students upon giving satisfactory evidence that they are prepared to profit by the courses desired.

Students who have satisfied all the requirements for entrance but do not wish to be candidates for a degree, will be admitted to any of the courses for which they are properly prepared.

For the requirements for a degree of Bachelor of Arts see Index.

ARRANGEMENT OF COURSES

In accordance with the elective system of the University, students preparing for journalism are not restricted to a fixed course of study, but are permitted to elect any studies which they are qualified to pursue. The following list contains those courses in history, economics, political science, philosophy, and English, which bear most directly upon journalistic work. The courses in each subject have been arranged under the four years in the order in which they normally follow each other. Courses marked with an asterisk are required of all students; the number in parenthesis indicates the number of the course in the department; Arabic figures following the parenthesis indicate the number of hours a week; and the Roman figures, the semester in which the course is given.

FRESHMAN YEAR

Elements of Newspaper Writing (Journalism 1), 1; *Freshman English (1), 3; *Foreign Language, 4; English History (5), 3; Medieval History (1), 3; *Mathematics, 3 or *Science, 5.

SOPHOMORE YEAR

Newspaper Reporting and Correspondence (Journalism 2), 3; Sophomore Composition (2, 3), or Advanced Composition (6), 3; General Survey of English Literature (30), 3; History of the United States (4), 3; Elements of Economics (1), 3, I, II; Elements of Money and Banking (5), 3; General Political Science (1), 3, I; Economic Geography (7a, 7b), 3, II; *Foreign Language, 4.

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JUNIOR YEAR

Newspaper Editing (Journalism 3), 2; American Literature (40), 2; Modern European History (2), 3; The British Empire Since 1688 (43), 2; Elementary Law (2), 3, I; Government and Politics in the United States (7), 2, II; International Law (18), 2; Party Government (22), 3, I; Charities and Corrections (41), 3, II; Labor Problems (23), 2, II; Social Psychology (39), 3, I; Elements of Public Finance (3), 3, I; Problems of Taxation (24), 2, II; History of New England (13), 3, II; Psychology (1), 3, I; Ethics (41), 3, II; History of Modern Philosophy (32), 3, II; Logic (11), 2, II; *Foreign Language, 2.

SENIOR YEAR

Editorial Writing, and Special Feature Work (Journalism 4, 5), 2; History of the West (11), 3; Nineteenth Century Europe (39), 3, II; Diplomatic History of the United States (15), 2; History of Europe and Asia (48), 2; Social and Economic Statistics (31, 32), 3; Transportation and Communication (35), 3, II; Financial History of the United States (33), 3, I; The Money Market (34a) 3, I; Industrial Evolution and Its Problems (20), 2, I; Administrative Problems (6), 2, I; The Law of the Press (25), 1, II; Theory and Practice of Legislation (26), 3; Oriental Politics and Civilization (20), 3, II; Municipal Government in Europe and the United States (15), 3, II; Contemporary International Politics (19), 1; Social and Political Ethics (42), 2, I; Philosophic Thought in Nineteenth Century English Literature (23), 2, II; Abnormal Psychology (7), 2, II; Modern Drama (52), 2; Drama and Shakspere (36, 36a), 3; American Literature (47), 2; Current Political Topics (32), 2; *Foreign Language, 2.

DEPARTMENTS OF INSTRUCTION

Journalism

1. Elements of Newspaper Writing. Practical talks once a week on the work of the newspaper reporter, with criticism of the work done by members of the class on the Daily Cardinal. Open to freshmen. *One hour a week throughout the year.* No credit. Assistant Professor BLEYER.

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2. Newspaper Reporting and Correspondence. Instruction and practice in all the details of the work of the reporter and correspondent. *Throughout the year; M., W., F., at* 10. Assistant Professor BLEYER.
3. Newspaper Editing. Instruction and practice in editing copy, correcting proof, writing headlines, and other details of editing; and in the organization of methods of local, state, and national news gathering. *Throughout the year; Tu., Th., at* 10. Assistant Professor BLEYER.
4. Editorial Writing. The theory and practice of editorial writing. *First semester; Tu., Th., at* 9. Assistant Professor BLEYER.
5. Special Feature and Magazine Writing. Lectures and practice in preparing special articles for newspaper and magazine publication. *Second semester; Tu., Th., at* 9. Assistant Professor BLEYER.

See also Current Political Topics (course 32 in political science), The Law of the Press (course 26 in political science), and courses in agricultural journalism.

English

For detailed information regarding these courses see Index.

1. Freshman English. English prose style. Composition. *Throughout the year; three hours a week.* Required of all freshmen. Professor HUBBARD and assistants.
2. Sophomore Composition. Exposition, first semester; narration, second semester. Elective for students who have finished freshman English. *Throughout the year; Tu., Th., at* 8, *and* 11. Assistant Professor DICKINSON and Miss BERKELEY.
3. Technical Writing. Exposition throughout the year. *Throughout the year; Tu., Th., at* 12. Assistant Professor DICKINSON.
6. Advanced Composition. Elective for juniors and seniors and for sophomores who have done very good work in course 1. *Throughout the year; Tu., Th., at* 11. *Three unit-hours credit.* Assistant Professor DODGE.
30. General Survey of English Literature. The history of English literature from the earliest times to the middle of the nineteenth century. *Throughout the year; M., W., F., at*

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8, 9, 10. Assistant Professors CAIRNS, DICKINSON, PYRE and YOUNG.

40. American Literature. A general survey of literary writings in America from the earliest times to the present. This course must be preceded by course 1, and should be preceded or accompanied by course 30. *Throughout the year; Tu., Th., at 9 and 10.* Assistant Professor CAIRNS.

36. The Drama. A part of the first semester is devoted to the history of the development of the drama, the remainder of the year to Shakspere. The course is open to seniors. *Throughout the year; M., W., F., at 11.* Professor FREEMAN.

36a. Shakspere. A short review of the political, social, and literary conditions of the Elizabethan age is followed by a careful study of ten representative plays of Shakspere. *Throughout the year; M., W., F., at 11.* Professor CUNLIFFE.

47. Significant Movements in American Literature. The subject for 1909–10 will be the origin and development of the short story in America, with some attention to its technique and its relation to other literary forms. Open to those who have completed course 40 or its equivalent. *Throughout the year; W., 2 to 4.* Assistant Professor CAIRNS.

52. Modern Drama. A survey of English dramatic literature beginning with the younger contemporaries of Shakspere and extending to the present time. *Throughout the year; Tu., Th., at 11.* Assistant Professor PYRE.

History

For detailed information regarding these courses see Index.

1. Medieval History. A general survey of the history of Europe from the barbarian invasions to the close of the fifteenth century. *Throughout the year; M., W., F., at 11.* Professor MUNRO, Associate Professor SELLERY, and assistants.

2. Modern European History. A general survey extending from the close of the fifteenth century to the present day. *Throughout the year; M., W., F., at 12.* Associate Professor SELLERY.

4. History of the United States. A general survey from the Revolutionary era to the present, with emphasis upon po-

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litical history. *Throughout the year; M., W., F., at* 11. Professor FISH.

5. English History. An outline of political and constitutional history will serve as a framework for the study of the economic, social, and intellectual development of the nation. *Throughout the year; Tu., Th., at* 10, *and a third hour in sections for conferences.* Professor DENNIS and assistants.

11. The History of the West. Particular attention is paid to the conditions of westward immigration and its economic, political, and social aspects. *Throughout the year; M., W., F., at* 12. Professor TURNER.

13. History of New England. A study of the transfer of population from Europe to the New England region, of the forces, social, economic, and political, that acted upon it there and the expansion westward across the United States and Canada. *Second semester; M., W., F., at* 10. Professor FISH.

15. Diplomatic History of the United States. A study of the actual negotiations between the United States and other countries and of the problems involved in these negotiations. *Throughout the year; Tu., Th., at* 10. Professor FISH.

39. The Nineteenth Century, 1815–1900. A general study of national development and of international relations, particularly since 1850. *Second semester; M., W., F., at* 10. Assistant Professor COFFIN.

43. The British Empire since 1688. A course dealing with the development of modern English institutions, foreign affairs, the international struggle for colonial and commercial supremacy, and the evolution of imperial politics. *Throughout the year; Tu., Th., at* 10. Professor DENNIS.

48. Europe and Asia. A general survey of the historical relations of eastern and western peoples, as a basis for courses in contemporary world politics. *Throughout the year; Tu., Th., at* 3. Professor DENNIS.

Political Science

For detailed information regarding these courses see Index.

1. General Political Science. A general survey of the field of political science. *Second semester; M., W., F., at* 8. Mr. SHEPARD.

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5. Elementary Law. The nature and sources of law, and the methods of its application. *First semester; M., W., F., at* 11. Associate Professor SCOTT.
6. Administrative Problems. *Second semester; Tu., Th., at* 8. Dr. MEYER.
7. Government and Politics in the United States. A general study of the American system of government. *Throughout the year; Tu., Th., at* 9. Associate Professor SCOTT.
15. Municipal Government in Europe and the United States. *Second semester; M., W., F., at* 8. Dr. MEYER.
18. International Law. *Throughout the year; Tu., Th., at* 11. Professor REINSCH.
19. Contemporary International Politics. A course of weekly lectures. *Throughout the year; W., at* 5. Professor REINSCH.
20. Oriental Politics and Civilization. *Second semester; M., W., F., at* 10. Professor REINSCH.
22. Party Government. Special attention will be given party organization and methods of legislative bodies. *First semester; Tu., Th., at* 10. Associate Professor SCOTT.
25. The Law of the Press. *Second semester; Tu., at* 3. Associate Professor SCOTT.
26. The Theory and Practice of Legislation. *Throughout the year; M., W., F., at* 12. Dr. MCCARTHY.
32. Current Political Topics. Open to seniors and first year graduate students. *Throughout the year; Tu., Th., at* 10. Mr. HORNBECK.

Political Economy

For detailed information regarding these courses see Index.

1. The Elements of Economics. *Repeated each semester; M., W., F., at* 8, 9, 10 *and* 11, *and Tu., Th., S., at* 9. Professor ADAMS, Associate Professor TAYLOR, and assistants.
2. Elementary Sociology. This course traces the actual evolution in each of the great departments of social life. *One unit-hour credit. First semester; M., W., F., at* 10. Professor Ross.
3. Elements of Public Finance. An introductory study of the general principles of public expenditures, public revenue,

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public indebtedness, and financial administration. *First semester; M., W., F., at* 9. Professor ADAMS.

5. The Elements of Money and Banking. An introductory course. *Repeated each semester; M., W., F., at* 9. Professor SCOTT and Dr. HESS.

7a. Economic Geography. A general survey of the history and present status of industry and commerce in the principal countries of the world excepting the United States. *Second semester; M., W., F., at* 10 *and* 11. Associate Professor TAYLOR.

7b. Economic Geography of the United States. *First semester; M., W., F., at* 8. Associate Professor TAYLOR.

8. Business Administration. Training course in business operations with practice in accounting systems, and other details of business organization and management. Professor GILMAN and assistants.

20. Industrial Evolution and Its Problems. A general survey of industrial development. *First semester; Tu., Th., at* 11. Professor ELY and Dr. PRICE.

23. Labor Problems. Strikes, trades unions, employers' associations, arbitration, immigration, child labor, etc. *First semester; M., W., F., at* 9. Professor COMMONS.

23a. Labor Legislation. A study of the labor law of the United States and foreign countries. *Second semester; M., W., F., at* 8. Professor COMMONS.

24. Problems in Taxation. *Second semester; Tu., Th., at* 9. Professor ADAMS.

31. Economic Statistics. Prices, wages, family budgets, labor, financial statistics. *Second semester; Tu., Th., at* 12. *Laboratory hours to be arranged.* Professor ADAMS.

32. Social Statistics. A study of vital statistics, suicides, crime, pauperism, etc. *Second semester; Tu., Th., at* 12. *Laboratory hours to be arranged.* Professor ADAMS.

34. The Money Market. Lectures on the methods and movements of the money markets. *First semester; M., W., F., at* 12. Professor SCOTT.

35. Transportation and Communication. Railways, waterways and express, telephone, telegraph, and postoffice services. *Second semester; M., W., F., at* 8. Professor MEYER and Dr. HESS.

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39. Social Psychology. The laws of mob-mind, craze, fad, fashion, conventionality, custom, standard of comfort, spirit of the age, public opinion, etc. *First semester; M., W., F., at* 11. Professor Ross.
41. Charities and Corrections. *Second semester; M., W., F., at* 10. Professor Ross.
42. Public Utilities. A comparison of public regulation and public and private ownership of public utilities in American states and foreign countries. *First semester; M., W., F., at* 8. Professor Commons.
45. American Labor History. Origin and development of the labor movement in America. *Second semester; M., W., F., at* 9. Professor Commons.

Philosophy

For detailed information regarding these courses see Index.

1. Psychology: Introductory Course. *First semester; M., W., at* 8, *and F., at an hour to be arranged; and Tu., Th., at* 9, *and F., at an hour to be arranged.* Professors Jastrow and Sharp and Assistant Professor Bode.
11. Logic. *First semester; M., W., F., at* 10 *and* 11. *Repeated in second semester; M., W., F., at* 8 *and* 10. Assistant Professor Bode.
23. The Philosophic Thought of the Nineteenth Century as Reflected in English Literature. *Second semester; Tu., Th., at* 10. Assistant Professor Bode.
32. History of Modern Philosophy. A study of the development of philosophy from the Renaissance to the present day. *Second semester; M., W., F., at* 11. Professor McGilvary.
41. Ethics: Introductory Course. *Second semester; M., W., F., at* 8. Professor Sharp.
42. Social and Political Ethics. Course 41 is not required as a preliminary. *First semester; Tu., Th., at* 12. Professor Sharp.
7. Abnormal Psychology. *Second semester; Tu., Th., at* 10. Professor Jastrow.

AGRICULTURAL JOURNALISM

1. Agricultural Journalism. This course is designed to meet the needs of those students who wish to study the spe-

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cial needs of the agricultural press in order to become contributors or editors. It is also planned to be of aid to those students expecting to enter upon investigational work, giving them special training in the preparation and publishing of technical matter. The work includes lectures and practice in writing to meet the special requirements of the agricultural journals. The lectures treat the history and technology of printing, history of agricultural journalism, survey of the present agricultural press, classes of agricultural writing, reporting of fairs, stock and corn shows, technical writing, and photography for the press. The exercises will include practice in the preparation of articles of the various classes, editing, proof reading, reviewing, interviewing, preparation of special articles, etc. *Second semester; two unit-hours.* Mr. MARQUIS.

LIBRARY TRAINING COURSES

Experts are agreed that the best foundation for success in library work is a sound general education, and the ideal plan of preparation is a four years' college course followed by one or two years of technical training. But for those who are not able to afford so much time a joint course has been arranged at the University and State Library School, whereby a student of ability and energy can in four years, with the opportunities afforded by the summer session, take the degree of Bachelor of Arts and at the same time complete the technical training required by the State Library School. In the first two years, students take the regular freshman and sophomore work of the College of Letters and Science, choosing such courses as will enable them to pass the entrance examination of the Library School. In the junior and senior years, they substitute equivalent courses in the Library School for ten unit-hours of University work each year. Of the twenty unit-hours of Library School work for which credit is given, four may be counted towards an English major, if the candidate chooses that subject.

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HOURS OF LECTURES

The Library School will arrange its lecture hours so as not to interfere with college courses. For the junior year the main courses in the Library School will be on Tuesday and Thursday, for the senior year, on Monday, Wednesday, and Friday.

LIBRARY SCHOOL COURSES

JUNIOR YEAR

First semester. Reference (2 hours), Loan (1), Classification (2). *Second semester.* Reference (2), Public Documents (1), Subject Bibliography (1), Library Economy (1); with practice work, for which facilities will be offered by the Free Library Commission and in the Madison Public Library.

SENIOR YEAR

First semester. Cataloguing (3), Library Economy (2), Book Selection (1). *Second semester.* Book Selection (1), Administration, etc. (2), Cataloguing Documents (1), Library Economy (1) with practice work and thesis. The thesis will be under the direction of the university department in which the student chooses his major subject, and the bibliography included in it will be accepted by the Library School in satisfaction of its thesis requirements.

Field Practice

Two months of actual library work in an approved library, preferably a Wisconsin library, will be required by the Library School before its diploma is granted. This work, for which the Director of the school will arrange, can be done during the summer, following either the junior or senior year. If it is not done until the close of the senior year, and the student should secure a position at commencement time, the first three months of satisfactory work in this position will be accepted for the required field work, and the diploma granted.

Detailed information regarding the courses in the University and in the State Library School is given in a special bulletin entitled Library Training Courses.

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COURSE FOR THE TRAINING OF TEACHERS

EDWARD C. ELLIOTT, Chairman, Professor of Education.

GENERAL STATEMENT

The training of teachers for the public secondary schools of the state, and the professional preparation of men and women as supervisors and directors of public educational work have been among the important functions of the University, since the time of its foundation. For more than twenty years, a department of Education has been maintained in order to provide that opportunity for distinctly professional study deemed necessary for the adequate equipment of those looking forward to teaching as a career. In addition, the University has demanded of its graduates the satisfactory completion of academic and professional courses to a specified amount before the adequacy of preparation to teach would be approved. Moreover, the state of Wisconsin has recognized by statute this academic and professional training, received by the graduates of the University, as equivalent to the fulfillment of the legal qualifications to teach in the public schools of the state.

In order to correlate and to provide for the further development of those several activities comprising the work of the University for the preparation of teachers, and to contribute to the improvement of the standards of teaching, especially in the secondary schools of the state, the special course for the training of teachers was established, February, 1908.

The course for the training of teachers is intended to prepare students for teaching and supervising instruction, particularly in the public high schools of the state. This preparation rests upon the basis of a sound general education, and consists, in addition, of the following principal parts: (1) special academic instruction in the subjects to be taught; (2) professional training by means of (a) departmental teachers courses, and (b) courses in the departments of Education and Philosophy, accompanied by observation of teaching, under supervision, in selected schools, and in certain instances by practice teaching. In order to bring these several agencies into proper relations and to secure adequate provision for their efficient maintenance, the

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course is placed in charge of a standing committee of the faculty, the chairman of which serves in an executive capacity.

The demands made upon teachers under modern educational conditions render it highly desirable that they should have one year of graduate study in addition to the ordinary four years of college work. Where this is not possible, they are strongly recommended to take two summer sessions, or one semester, of advanced study, entitling them to the special certificate, of which particulars are given below. Provision is, however, made for a course to be completed during the four years of undergraduate study, embodying the features outlined above, and leading to the University Teachers Certificate.

UNDERGRADUATE COURSE FOR THE TRAINING OF TEACHERS

The Undergraduate Course for the Training of Teachers is designed to meet the needs of those students who during the period of undergraduate study desire to prepare themselves for teaching. For these students, provision is made for such a correlation of academic and professional study as will meet the minimum requirements for teaching.

ADMISSION AND REGISTRATION.—1. To become a candidate for the University Teachers Certificate, a student must, before December 1 of the junior year, in addition to the usual registration, register in the Course for the Training of Teachers.

2. Each registrant must indicate for the joint approval of his major adviser and the chairman of the committee, the subject or subjects, preparation for the teaching of which is contemplated. In no case will more than three *related* subjects be approved. (A major subject; a major and one minor subject; a major and two minor subjects.)

REQUIREMENTS FOR COMPLETION.—1. Satisfactory fulfillment of the requirements of preparation for the teaching of either:

(a) A major subject; or

(b) A major subject and one minor subject; or

(c) A major subject and two minor subjects.

2. To fulfill the requirements of preparation for the teaching of the selected *major* subject, a student must present a total of not less than *twenty* unit-hours of credit; and, in addition, credit for the departmental teachers course in such major subject.

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(See below; Departments of Instruction for the credit requirements prescribed by the different departments.)

3. To fulfill the requirements of preparation for the teaching of the selected *minor* subject or subjects, a student must present a minimum of *ten* unit-hours of credit in each minor subject. This minimum may not include any departmental teachers course. (See below, Department of Instruction for the credit requirements prescribed by the different departments.)

4. In addition to the indicated requirements for the major and minor subjects, a student must fulfill the special requirements for the University Teachers Certificate as prescribed by the faculty of the University.

University Teachers Certificate

The requirements for the University Teachers Certificate shall consist, in addition to the work done in the major subject and other work, of twelve unit-hours, to be divided as follows: Psychology, (Philosophy 1), *three unit-hours;* One Departmental Teachers Course, *two unit-hours;* Education, *seven unit-hours;* including an option of *two unit-hours* in a teachers course in a second department. (June 3, 1907.)

The requirement of Education is subject to the following conditions:

(a) Credit must be obtained in at least one of the following courses: Education 1a, 1b, 13a, 13b, or 41. (b) The remaining hours must be made up by electives from the following: Education 11a, 11b, 4a, 4b, 5, 15, 16, or from those courses mentioned in (a) not already completed. Course 15 (Contemporary Educational Movements) may not be elected by students who have completed course 4a, or 4b, or 13a, or 13b. Course 16 (Educational Classics) may not be elected by students who have completed course 1a, or 1b.

5. Upon the fulfillment of the foregoing requirements a student shall be recommended by the chairman of the committee to the President of the University, to receive the certified statement prescribed by section 458b—2 of the Laws of Wisconsin. This certified statement indicating the subject, or subjects, the requirements for the teaching of which have been fulfilled, when presented to the state superintendent, entitles the holder to

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receive a license to teach in any public school in Wisconsin for one year. Graduates who have received this certificate and present satisfactory evidence of good moral character and one year of successful teaching after graduation, are entitled to receive from the state superintendent an unlimited state certificate. All students receiving the University Teachers Certificate after June, 1908, must comply with the requirements of the Undergraduate Course for the Training of Teachers.

ADVANCED COURSE FOR THE TRAINING OF TEACHERS

The Advanced Course for the Training of Teachers is designed to meet the needs of those students who desire a more intensive preparation for teaching than that provided for by the Undergraduate Course. As planned at the present time, the special advanced study may be accomplished during one semester of resident graduate work or through work during two summer sessions.

ADMISSION AND REGISTRATION.—1. Any student eligible to graduate standing in the University, may, upon the recommendation of the departments concerned and the chairman of the committee, be permitted to register in the Advanced Course for the Training of Teachers. Provided, that the previous preparation of the student contains an amount of professional study equivalent to that specified in paragraph 4 of the requirements indicated for the completion of the Undergraduate Course for the Training of Teachers.

2. Any student eligible for entrance to graduate standing in the University, whose previous preparation does not contain an amount of professional study equivalent to that specified in paragraph 4 of the requirements indicated for the completion of the Undergraduate Course for the Training of Teachers, may, upon the recommendation of the departments concerned, and the chairman of the committee, be permitted to register in the Advanced Course for the Training of Teachers. Provided, that such student must complete, in addition to the indicated requirements of the Advanced Course, an equivalent of such deficiency.

3. Any student who has completed the work of the junior year of any of the colleges of the University, may, upon the joint recommendation of the department concerned and the chairman of the committee, be permitted to register in the Ad-

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vanced Course for the Training of Teachers, during the following summer session. Under ordinary conditions the requirements for the completion of the Advanced Course may be fulfilled during a second summer session, it being understood that the requirements for the completion of the Undergraduate Course have been previously fulfilled.

REQUIREMENTS FOR COMPLETION.—1. The satisfactory completion of an amount of work equal to at least twelve unit-hours, in addition to the requirements prescribed for the bachelor's degree and for the Undergraduate Course for the Training of Teachers.

2. For those students making special preparation for high school teaching, the twelve unit-hours shall be divided approximately as follows:

Academic subject or subjects.....8 hours.
Education .....4 hours.

3. For those students making special preparation for the work of school superintendents and principals, the twelve unit-hours shall be divided as follows:

Education .....8 hours.
Academic subject .....4 hours.

4. In connection with the requirements in Education noted under (2) and (3) the student must fulfill such special requirements regarding the observation of teaching, visitation of schools and practice teaching as may be indicated by the department of Education. Students desiring to fulfill these special requirements are first entitled to such privileges and opportunities as may be available within the University. For those students making special preparation for the work of critic teachers in normal schools, or of instructors in Education in normal schools or universities, the entire twelve unit-hours may be taken within the Department of Education.

Special Certificate

Upon the fulfillment of the requirements indicated above, and upon the joint recommendation of "fitness" by the Department of Education and the other departments concerned, the student shall be recommended by the chairman of the committee to the President of the University, to receive *The Certificate in the Advanced Course for the Training of Teachers.*

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University Summer Session

The announcement of the summer session should be referred to for detailed information regarding the courses open to students in the Advanced Course for the Training of Teachers.

PROFESSIONAL INSTRUCTION—DEPARTMENTAL TEACHERS COURSES

As stated above, this course rests upon the foundation of a sound general education obtained during the first two years of college work. Very naturally during these two years, the student will begin to direct his study along certain academic lines, until by the beginning of the junior year, his tastes and capacities will enable him to focus his attention more directly upon those subjects for which preparation to teach is contemplated. During the junior year, and in some instances earlier, opportunity will be found to elect certain of the required fundamental professional courses in Philosophy and Education.

The plan of the course involves a considerable concentration of professional study during the junior and senior years. In addition to the courses in the Department of Education, this professional training includes courses, within the selected academic departments, especially adapted to the professional needs of students preparing to teach. These departmental teachers courses place their chief emphasis upon the scope and method of presentation of the specific subject matter normally included within the curriculum of the high school and are in charge of instructors especially fitted for the work. They are open only to those students who have previously completed a certain prescribed minimum of academic courses in the subject, usually students of senior or graduate standing. At least one of these courses must be taken by students preparing to teach. Credit for such course is included in the maximum number of credits permitted for a major subject.

For the purpose of affording a practical concrete basis for the work of the several departmental teachers courses, and of the courses in the Department of Education, facilities are provided for the observation of teaching, and in some instances for practice teaching in elementary classes within the University.

The observation of teaching is carried on in the high and elementary schools of Madison, under a special agreement with

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the board of education of the city. By this agreement, a number of teachers in the Madison public schools have been specially designated to cooperate with the university instructors in making the departmental teachers courses and the observational work of the fullest value to the students.

During the year 1908–09 the following teachers in the public schools of Madison have been in charge of the classes open for observational study by students of the University:

HIGH SCHOOL.—Lelia Bascom, English; Sara D. Jenkins, English and French; Irma Kleinpell, German; Julia Murphy, History; W. D. Shannahan, Latin; F. M. Surrey, Physics; Winnie C. Warning, Mathematics; M. J. White, History.

ELEMENTARY SCHOOLS—LYMAN C. DRAPER SCHOOL:—Adeline R. Marvin, *Principal*, Eighth Grade; C. Lorena Reichert, Seventh Grade; Anna L. Thomas, Sixth Grade; Sadie Terry, Fifth Grade; Eva M. Wirth, Fourth Grade; Louise Stegeman, Third Grade; Alice Mihleis, Second Grade; Clare Dengler, First Grade.

WASHINGTON IRVING SCHOOL:—Mary L. Edgar, *Principal*, Eighth Grade; Renette Jones, Seventh Grade; M. Irene Whaley, Sixth Grade; Florence Whitney, Fifth Grade; Mary L. Burdick, Fourth Grade; Helen F. Fitch, Third Grade; Florence Nelson, Second Grade; Viola Pelunek, First and Second Grades; Dora Huber, First Grade.

SPECIAL:—Bradley L. Joyce, Manual Training; Blanche M. Newton, Domestic Science.

GRADUATES OF NORMAL SCHOOLS

Graduates of the advanced course of the normal schools of the state, admitted to the University, may obtain the University Teachers Certificate, or the special certificate in the Advanced Course for the Training of Teachers, by fulfilling the above mentioned requirements in their university course.

SPECIAL LECTURERS

In order that the Course for the Training of Teachers may be maintained and developed in close relation with the practical educational interests of the state, the University aims each year to enlist the cooperation of presidents and professors of the normal schools, superintendents, principals and others engaged in educational work as special lecturers.

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DEPARTMENTS OF INSTRUCTION

Only such departments and courses of instruction are here indicated as are immediately related to the professional work mentioned within the Undergraduate Course for the Training of Teachers. The announcements of the several departments and colleges of the University should be referred to for more extended and detailed information regarding the courses of instruction open to those students intending to teach. The chairman of the committee and the departments concerned should be consulted with reference to the fulfillment of the requirements for the Advanced Course for the Training of Teachers.

Agriculture

Beginning with the academic year 1909–10, the College of Agriculture proposes to establish, with the cooperation of the several allied departments of the University, courses appropriate for preparation for the teaching of agriculture.

Botany

For a detailed description of the courses offered in the Department of Botany, comprising the academic requirements for teaching, see Index under Botany.

Students preparing to teach botany either as a major or minor subject are advised to elect courses in both structural and physiological botany, and also those that involve field work.

ACADEMIC REQUIREMENTS TO TEACH BOTANY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach botany as a major subject are required to obtain a minimum credit of twenty unit-hours from the following courses: Biology 1; Botany 2, 3, 4, 5, 6, 7, 9, 10, 12, 13, 14, 17, 19, 20, 30, and 31.

ACADEMIC REQUIREMENTS TO TEACH BOTANY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject with botany as a minor subject, are required to obtain a minimum credit of ten unit-hours from the following courses: Biology 1, Botany 2, 3, 4, 5, 6, 12, 13, 20 and 30.

DEPARTMENTAL TEACHERS COURSE.—Botany 13. Botanical Methods. Practice will be given in methods of preparing plant material and of growing various algae and fungi for use in the

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class room. Opportunity will also be given for collecting and preserving material for high school laboratory courses. Open to students who have had courses 1 to 4. *Second semester; two unit-hours.* Professor HARPER and Mr. BRANNON.

Chemistry

For a detailed description of the courses offered in the Department of Chemistry, comprising the academic preparation for teaching, see Index under Chemistry.

ACADEMIC REQUIREMENTS TO TEACH CHEMISTRY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach chemistry as a major subject are required to obtain a minimum credit of twenty unit-hours in chemistry, including courses 1, 20 (first semester) and 11 (at least five hours work).

ACADEMIC REQUIREMENTS TO TEACH CHEMISTRY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach chemistry as a minor subject are required to obtain a minimum credit of ten unit-hours in chemistry.

DEPARTMENTAL TEACHERS COURSE.—Chemistry 5. The Teaching of Chemistry. This course considers both the matter to be presented and methods of teaching to be adopted in a high school course in chemistry. The prerequisites for the course are the major requirements above indicated. Course 11 may be taken simultaneously with this course. *Second semester; two lectures or recitations per week.* Assistant Professor WALTON.

Commerce

For detailed information concerning the courses offered in the Course in Commerce see Index under Commerce.

The Course in Commerce affords adequate facilities for those students who wish to prepare themselves to teach commercial subjects in secondary schools. Such students are advised to consult with the director of the Course in Commerce in the arrangement of elective work. Special facilities for pedagogical practice will be given such students in connection with the Courses in Business Administration, and work in addition to that prescribed may be arranged in subjects of especial importance to teachers.

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Education

For detailed information concerning the equipment, and the courses offered in the Department of Education, see Index under Education.

The following courses are open for election by those students fulfilling the requirements in Education of the Undergraduate Course for the Training of Teachers. (See Index under University Teachers Certificate.)

Education 1a. History of Education. *First semester; M., W., F., at* 9. Professor ELLIOTT.

Education 1b. History of Education in the Nineteenth Century. *Second semester; M., W., F., at* 9. Professor ELLIOTT.

Education 4a. Administration and Supervision of Education. *First semester; Tu., Th., S., at* 9. Professor ELLIOTT.

Education 4b. Administration and Supervision of Education. *Second semester; Tu., Th., at* 9. Professor ELLIOTT.

Education 5. Comparative Educational Administration. *Second semester; S.,* 9 *to* 11. Professor ELLIOTT.

Education 11a. Mental Development. *First semester; M., W., F., at* 10. Professor O'SHEA.

Education 11b. Mental Development. *Second semester; M., W., F., at* 10. Professor O'SHEA.

Education 13a. Principles of Education. *First semester; M., W., F., at* 11. Professor O'SHEA.

Education 13b. Principles of Education. *Second semester; M., W., F., at* 11. Professor O'SHEA.

Education 15. Contemporary Educational Movements. *First semester; M., W., at* 12. Professor O'SHEA and Professor ELLIOTT.

Education 16. Educational Classics. *Second semester; Th.,* 4 *to* 6. Professor O'SHEA.

Education 41. Educational Psychology. *First semester; and repeated in the second semester; Lectures and demonstrations, Tu., Th., at* 11. *One laboratory period of two hours a week at hours to be arranged.* Assistant Professor DEARBORN.

Courses 11a, 11b, 13a, 13b, and 4b are given with the cooperation of those teachers in the elementary and high schools in Madison in charge of classes open for observational study. (See paragraph above, Professional Instruction, etc.)

Students registering in the Advanced Course for the Train-

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ing of Teachers will consult with the Department of Education concerning additional courses open to election by such students.

English

For a detailed description of the courses offered in the Department of English, comprising the academic requirements for teaching, see Index under English.

ACADEMIC REQUIREMENTS TO TEACH ENGLISH AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach English as a major subject are required to take, in addition to the thesis, twenty-four hours as a minimum, exclusive of course 1 (required of all students). Courses 30, 20a (Anglo-Saxon 3 hours), 50a and 50b must be included. A total of thirty-six hours, in addition to the thesis and course 1, may be taken.

ACADEMIC REQUIREMENTS TO TEACH ENGLISH AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with English as a minor subject, are required to take, in addition to course 1, (required of all students) courses 30, and 50a, or 2, or 6 (first semester), and one of the following groups: (a) 34 and 35; (b) 36 or 36a; (c) 40.

DEPARTMENTAL TEACHERS COURSES.—50a. The Teaching of English. This course presents the aims, methods and organization of the English work for the first two years in high school, with special emphasis on the teaching of composition; it includes practice work in the correction of themes. *First semester; Tu., Th., at* 12. Mr. BASSETT, in cooperation with Mrs. JENKINS and Miss BASCOM of the Madison High School.

50b. The Teaching of English. (Continuation of 50a.) This course deals with the work of the third and fourth years, with special emphasis on the teaching of literature; it includes a study of the classics used in high school reading. *Second semester; Tu., Th., at* 12. Mr. BASSETT, in cooperation with Mrs. JENKINS and Miss BASCOM of the Madison High School.

Observation of teaching in the high school is required in each course.

Before entering the departmental teachers course, students should review English grammar and the principles of rhetoric, and make themselves familiar with the following selections:

For 50a:

Arnold's *Sohrab and Rustum;* Bunyan's *Pilgrim's Progress.*

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Part I; Burrough's *Birds and Bees, Sharp Eyes, A Bunch of Herbs*, etc.; Coleridge's *Ancient Mariner;* Cooper's *Last of the Mohicans;* Dickens' *Christmas Carol;* George Eliot's *Silas Marner;* Goldsmith's *The Deserted Village;* Hawthorne's *Twice Told Tales;* Irving's *Alhambra, Sketch Book;* Macaulay's *Lays of Ancient Rome;* Scott's *Ivanhoe;* Shakspere's *Julius Caesar, The Merchant of Venice;* Thoreau's *Succession of Forest Trees;* Stevenson's *Treasure Island;* Warner's *A-Hunting of the Deer;* Webster's *First Bunker Hill Oration.*

For 50b (In addition to list for 50a):

Addison's *De Coverley Papers;* Addison and Steele's *Spectator;* Burke's *Conciliation with America;* Browning's Shorter Poems; Carlyle's *Essay on Burns;* Emerson's Essays (selected); Franklin's *Autobiography;* Mrs. Gaskell's *Cranford;* Goldsmith's *Vicar of Wakefield;* Hawthorne's *House of the Seven Gables;* Irving's *Life of Goldsmith;* Lowell's *Vision of Sir Launfal;* Macaulay's *Life of Johnson, Lord Clive;* Poe's Poems; Poe's *Gold Bug and Other Stories;* Shakspere's *Macbeth, As You Like It;* Tennyson's *Gareth and Lynette, Lancelot and Elaine, The Passing of Arthur;* Washington's *Farewell Address.*

The following texts are used in English 50a and 50b:

Baskervill & Sewell's *English Grammar;* Pearson's *Principles of Composition;* Woolley's *Handbook of Composition;* Carpenter, Baker & Scott, *The Teaching of English;* Chubb, *The Teaching of English.*

Geology

See under Physiography and Geography.

German

For a detailed description of the courses offered in the Department of German, comprising the academic preparation for teaching, see Index under German.

ACADEMIC REQUIREMENTS TO TEACH GERMAN AS A MAJOR SUBJECT.—UNDERGRADUATE COURSE.—Students beginning the study of German in the University with course 1 will generally not be able to prepare to teach German as their major subject to good advantage. Students taking course 2 in their freshman year will normally have to devote to German ten unit-hours a year for the remaining three years, taking thus, including the thesis,

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a total of thirty unit-hours in advance of course 2. If desirable they may take up to forty-six unit-hours in German, including German 2. The following courses are required: Courses 10 or 12, 14, 30 or 31, 50 and 51.

ACADEMIC REQUIREMENTS TO TEACH GERMAN AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with German as a minor subject will be required to complete course 10 or 12 and at least one course in German literature selected from courses 21 to 31 inclusive.

DEPARTMENTAL TEACHERS COURSE.—German 14. The Teaching of German. The course includes, (a) A critical study of the methods of teaching modern foreign languages; lectures, reports, discussions. (b) The visiting of at least twelve classes in the Madison High School, upon which written reports are required. The visiting of at least four university classes in elementary German, upon which written reports are required. (c) Practice teaching. Opportunity is offered a limited number of students in the second semester to teach for a week each a sect'on of beginners' German under special supervision. *First semester; M., W., at* 3. Assistant Professor EVANS and Professor VOSS. (Given in 1908–09 by Assistant Professor PROKOSCH, in cooperation with Miss KLEINPELL of the Madison High School.)

Greek

For a detailed descr'ption of the courses offered in the Department of Greek, comprising the academic preparation for teaching, see Index under Greek.

ACADEMIC REQUIREMENTS TO TEACH GREEK AS A MAJOR OR MINOR SUBJECT.—UNDERGRADUATE COURSE.—Students preparing to teach Greek as a major subject are required to obtain a credit of eighteen unit-hours in courses 1a, 1b, 2a, 3, and either 5a and 5b or 6. In the case of exceptionally good students, the completion of courses 1a, 1b, 2a and 3 will be accepted as a minimum preparation to teach Greek as a minor subject. Course 3 (Greek Prose Composition) is required of all students preparing to teach Greek.

DEPARTMENTAL TEACHERS COURSE.—The Department of Greek does not offer a regular departmental teachers course. For those

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preparing to teach Greek, opportunity is provided to study the method and aims of the instruction through the university classes in elementary Greek. For those students who have taken and completed the work in elementary Greek elsewhere, regular visitation of the university classes in elementary Greek is recommended as an essential element in the preparation to teach.

History

For a detailed description of the courses offered in the Department of History, comprising the academic preparation for teaching, see Index under History.

Through elementary and advanced courses in ancient, medieval, modern, English, and American history, the Department of History offers a thorough academic preparation for the work of the high school. The elementary courses are designed to furnish a general survey of the subjects mentioned and to introduce the student to the special problems of history; the advanced courses provide the more intensive historical training required for efficiency in the instructional work of the high school. The department is clearly of the opinion that a student who has had elementary courses in two or three fields and several advanced courses will make a more successful teacher in all the fields embraced even in a four years' high school course in history than if he had had all the elementary courses and no advanced work. The ideal academic preparation would involve elementary and advanced courses in each field taught in the high school, but this will usually require more than four years.

ACADEMIC REQUIREMENTS TO TEACH HISTORY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach history as a major subject are required to obtain a minimum credit of thirty unit-hours in history (including a bachelor thesis), of which at least fourteen must be in advanced courses and thesis. Any student meeting these requirements will be admitted to the departmental teachers course.

ACADEMIC REQUIREMENTS TO TEACH HISTORY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with history as a minor subject, are required to obtain a minimum credit of sixteen unit-hours in history, including at least four unit-hours in advanced

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courses. Such students will be admitted to the departmental teachers course, provided their work has shown promise.

DEPARTMENTAL TEACHERS COURSE.—History 50. The Teaching of History. This course is designed to supplement the general professional study in the Department of Education with special professional training in the teaching of history. The course includes: (a) A consideration of the special educational value of history, (b) A careful comparative study of the different methods at present employed in the high schools, their advantages and limitations. The object is to furnish the prospective teacher with a practical, rational method, with which to begin his teaching, (c) Observation of teaching. The class study of methods is made as concrete as possible by the observation of high school teaching, by demonstration of methods by the University and high school instructors connected with the course, and by practice work. *Second semester; M., W., at* 9. For 1908–09, Assistant Professor CHASE, in cooperation with Mr. WHITE and Miss MURPHY of the Madison High School.

Latin

For a detailed description of the courses offered in the Department of Latin comprising the academic preparation for teaching, see Index under Latin.

ACADEMIC REQUIREMENTS TO TEACH LATIN AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Latin as a major subject are required to obtain a minimum credit of thirty-two unit-hours in Latin. This must include Latin 1, 2, 3 or 5, and 4, or equivalents, and 16 (departmental teachers course).

ACADEMIC REQUIREMENTS TO TEACH LATIN AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Latin as a minor subject are required to obtain a minimum credit of twenty-four unit-hours in Latin. This must include Latin 1, 2, 3 or 5, 4, and one advanced course for one year.

DEPARTMENTAL TEACHERS COURSE.—Latin 16. The Teaching of Latin. This course consists of: (a) Lectures, discussions, and assigned readings in departmental and pedagogical journals on the problems and methods of teaching Latin in secondary schools; (b) The close study of one of the Latin authors read in the schools; particular attention given during 1908–09 to the second book of Caesar's Commentaries. (c) Reports and discus-

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sions based upon the practice teaching and the observation of teaching. *Second semester; Tu., Th., at* 12. Associate Professor FISKE and Mr. SHANNAHAN of the Madison High School.

Mathematics

For a detailed description of the courses offered in the Department of Mathematics comprising the academic preparation for teaching, see Index under Mathematics.

ACADEMIC REQUIREMENTS TO TEACH MATHEMATICS AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach mathematics as a major subject are required to obtain, in addition to the thesis, twenty-six unit-hours of credit, exclusive of courses 1 to 4 and 7, and including courses 5, 6, and 12, at least courses 5 and 6, together with the courses that necessarily precede them.

ACADEMIC REQUIREMENTS TO TEACH MATHEMATICS AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with mathematics as a minor subject, are required to obtain credit for fifteen unit-hours in courses 1 to 5 inclusive, or their equivalent.

DEPARTMENTAL TEACHERS COURSE.—Mathematics 22. The Teaching of Mathematics. A course treating of the content of elementary mathematics and of the problems of the teaching of mathematics in the secondary school. Open to seniors who have completed course 5 or its equivalent and, by special permission, to juniors possessing the requisite preparation. *Second semester; Tu., Th., at* 12. Assistant Professor SKINNER.

Music

For detailed information concerning the courses in the Department of Music, comprising the preparation of teachers of public school music, see Index under Music.

The Department of Music has adequate facilities for the training of teachers of public school music. This training includes courses both for those who expect to combine the teaching of other branches with the subject of music in the grades or the high school (see in particular course 9); and for those who desire to fit themselves for the special work of supervision of music in the public schools (see in particular courses announced

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in public school music). Opportunity is also offered for cultural studies in appreciation of music, history of music, etc.

Attention is called to the special advantages offered in the School of Music for the private study of piano, voice, organ and violin for moderate tuition; also for choral practice in the large Choral Union which rehearses weekly throughout the academic year.

Philosophy

For detailed information concerning the courses offered in the Department of Philosophy open for election by students preparing to teach, see Index under Philosophy.

The following course (Philosophy 1) is required of all students fulfilling the requirements of the Undergraduate Course for the Training of Teachers.

Philosophy 1. Psychology: Introductory Course. *First semester.* Professors JASTROW and SHARP, Assistant Professor BODE, and Dr. STARCH.

Section 1. *Tu., Th., at 9 and F., at an hour to be arranged.* Professor JASTROW and Dr. STARCH.

Section 2. *M., W., at 8 and F., at an hour to be arranged.* Professor SHARP and Assistant Professor BODE.

Physical Training

For detailed information concerning the courses in the departments of Physical Training, comprising the general preparation of men and women who desire to fit themselves as teachers, see Index under Physical Training. The Department of Physical Training for Men, and the Department of Physical Training for Women, offer special courses in the Teaching of Physical Training.

The Teaching of Physical Training—Men. The course will consist of (a) practical and (b) theoretical work. Under (a) will be given instruction in drills with dumb-bells, wands, clubs, and free hand movements, and methods of arranging and conducting gymnastic classes. Practical work will be offered on the various pieces of gymnastic apparatus, such as the long and side horse, parallel bars, horizontal bars, rings, etc. Attention will be given to the grading of exercises on these pieces of apparatus. Under (b) will be given lectures on the

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following subjects: the physiology of exercise; personal hygiene; first aid to the injured; the various systems of physical training; the development and growth of the physical training movement in educational institutions; the prescription of exercise; the method and object of physical examinations, etc. Members of the class will be given opportunity to get practical experience in teaching, and in leading gymnasium squads. *Second semester; two unit-hours.* Dr. HUTCHINS, Dr. ELSOM, and Mr. ZARFOS.

The Teaching of Physical Training—Women. This course includes the theory of physical training, practice in teaching gymnastics, instruction in sports and games, the management and organization of play grounds, corrective exercises for use in the school room, and lectures on personal and school hygiene. Primarily for seniors who have had three years of physical training. *Repeated each semester; two unit-hours.* Assistant Professor MAYHEW.

Physics

For a detailed description of the courses offered in the Department of Physics, comprising the academic requirements for teaching, see Index under Physics.

ACADEMIC REQUIREMENTS TO TEACH PHYSICS AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach physics as a major subject are required to have a minimum credit of twenty unit-hours in physics.

ACADEMIC REQUIREMENTS TO TEACH PHYSICS AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with physics as a minor subject, are required to have a minimum credit of ten unit-hours in physics.

DEPARTMENTAL TEACHERS COURSE.—Physics 4. The Teaching of Physics. A course of experimental lectures covering all branches of physics and designed to serve as a training course for those who are preparing to teach. Under the guidance of the instructor, the class work is conducted by the students themselves and the experiments are likewise performed by the members of the class, the aim here being to train each person in the clear presentation of this subject, and to acquaint him with the details of manipulating demonstrational apparatus.

The course is open to all who have taken courses 2a, 2b, 3a,

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and 3b, or who are taking these courses in connection with this study. *Second semester; Tu., W., at* 5. Professor SNOW.

Physiography and Geography

For a detailed description of the courses offered in the Department of Geology, comprising the academic preparation for teaching physiography and geography, see Index under Geology.

ACADEMIC REQUIREMENTS TO TEACH PHYSIOGRAPHY AND GEOGRAPHY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach physiography and geography as a major subject are required to obtain a minimum credit of twenty unit-hours in approved courses in the Department of Geology.

ACADEMIC REQUIREMENTS TO TEACH PHYSIOGRAPHY AND GEOGRAPHY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach physiography and geography as a minor subject are required to obtain a minimum credit of ten unit-hours in approved courses in the Department of Geology.

DEPARTMENTAL TEACHERS COURSE.—Geology 10. The Teaching of Physical Geography. Includes both subject matter and methods; considers (1) the aims of teaching physical geography in the high school; (2) the phases of the subject which deserve emphasis; (3) the relation of the subject to others in the curriculum; (4) materials for the teachers' use; (5) field and laboratory work. Geology 4 or 4a a prerequisite. *Second semester; M., W., at* 10. Assistant Professor WHITBECK.

Physiology

For a detailed description of the courses offered in the Departments of Anatomy, Physiology, and Bacteriology and Hygiene, comprising the academic preparation for teaching physiology, see Index under Anatomy, Physiology, Bacteriology, Hygiene.

The Departments of Anatomy, Physiology, and Bacteriology and Hygiene, acting conjointly, have outlined the following courses preparatory for teaching human physiology.

ACADEMIC REQUIREMENTS FOR TEACHING PHYSIOLOGY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach physiology as a major subject are required to obtain a credit of twenty-three unit-hours in the following courses: Physiological Chemistry 4 (Prerequisite, organic chemistry) four unit-hours; Anatomy 5 (Prerequisite Biology 1) three unit-hours;

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Anatomy 15, three unit-hours; Physiology 5, nine unit-hours; Bacteriology 1, three unit-hours; General Hygiene 7, one unit-hour.

In order to fulfill these requirements such students must complete Physics 1, Chemistry 1, and Biology 1 before the beginning of the junior year.

ACADEMIC REQUIREMENTS TO TEACH PHYSIOLOGY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach physiology as a minor subject are required to obtain a credit of seven unit-hours in the following courses: Physiology 1, three unit-hours; Bacteriology 1, three unit-hours; General Hygiene 7, one unit-hour; Physics 1, Chemistry 1, and Biology 1 must also be completed.

Romance Languages

For a detailed description of the courses offered in the Department of Romance Languages, comprising the academic preparation for teaching, see Index under French.

Students who wish to prepare for teaching in other Romance Languages, such as Spanish or Italian, should consult with the chairman of the Department of Romance Languages.

Students expecting to teach French are also advised to take part in the work of the Romance Language Club.

ACADEMIC REQUIREMENTS TO TEACH FRENCH AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach French as a major are required to obtain a minimum credit of twenty unit-hours in advance of course 10. The following courses are required of such students: courses 35 or 36, or one hour of each; one two-hour composition or conversation course, or two one-hour courses of such work. At least one of the courses dealing with an extended period of French literature, as for example courses 21, 22, 23, 25, 26, 28, 31, 32, or 34, and course 38 in French pronunciation should be taken. For those who are able to take more than the minimum amount of work, courses 40 or 41 are recommended.

ACADEMIC REQUIREMENTS TO TEACH FRENCH AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with French as a minor subject, are required to obtain a minimum credit of eight unit-hours in advance of course 10. At least one course should be in con-

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versation or composition, and one of the courses in some extended period of French literature, as for example courses 21, 22, 23, 25, 26, 28, 31, 32, or 34, and course 38 in French pronunciation should be taken. The requirements for preparation to teach French as a minor will vary greatly, depending upon the acquirements of the student in first and second year work. All such students are strongly advised to consult with the chairman of the Department of Romance Languages during their second year's work in French.

DEPARTMENTAL TEACHERS COURSES.—French 35. The Teaching of French. A study of the aims and methods in teaching French. Lectures and reports (one hour). A review of the essentials of grammar taught in first year French (one hour). *First semester; one or two unit-hours.* Professor SMITH and Assistant Professor GAY.

French 36. The Teaching of French. A review of the work in second year teaching, dealing particularly with the following points: Pronunciation, reading, and composition (one hour). Practice teaching, and visiting classes, assigned work and reports (one hour). *Second semester; one or two unit-hours.* Professor SMITH and Assistant Professor GAY.

In course 35 there is a certain amount of class visiting in addition to the work indicated, and this is made the subject of reports and discussions in the course. In course 36 some class visiting is required of all, and those who wish, and for whom it is thought desirable, are given opportunity to do some practice teaching in French classes under the supervision of a competent instructor. Some of the class visiting is done in the Madison High School and the rest in the elementary classes at the University. The practice teaching is at the present time in the university classes.

Zoology

For a detailed description of the courses offered in the Department of Zoology, comprising the academic requirements for teaching, see Index under Zoology.

ACADEMIC REQUIREMENTS TO TEACH ZOOLOGY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach zoology as a major subject are required to obtain a minimum credit of twenty unit-hours from the following courses: Biology 1; Zoology 2a, 2b, 4, 9, and 20.

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ACADEMIC REQUIREMENTS TO TEACH ZOOLOGY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with zoology as a minor subject, are required to obtain a minimum credit of ten unit-hours from approved courses in the list above indicated.

DEPARTMENTAL TEACHERS COURSE.—Zoology 20. The Teaching of Zoology. A consideration of the aims, methods, and subject matter of zoological instruction in the school. This course should be taken by all students preparing to teach zoology as a major subject. *First semester; one lecture or conference per week.* Assistant Professor HOLMES.

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THE COLLEGE OF ENGINEERING

FREDERICK E. TURNEAURE, Dean, Professor of Engineering.

ORGANIZATION OF THE COLLEGE

The College of Engineering is organized in the belief that a thorough-going fundamental training is the first essential to a successful engineer, but that this fundamental training may be best secured not alone by theoretical study, but by giving attention as well to the practical application of the principles involved. It is further a leading thought that after the fundamental principles have been mastered, a certain measure of specialization in the main lines of engineering is advisable because of the great development of engineering in recent years, and the various phases which it is rapidly assuming. It is the endeavor of the college to combine a reasonable amount of specialization during the later years of its courses with a thorough grounding in the fundamentals during the earlier portions; and in carrying out this plan, it endeavors to make the mathematical and theoretical courses strong in the earlier years, while the drawing and shop courses continue progressively from the beginning to the end. It also introduces sufficient foreign language to enable its graduates to read the professional German and French literature, and aims to give so much of a mastery of the English language as to enable its graduates to present professional subjects with ease, clearness and effectiveness.

REQUIREMENTS FOR ADMISSION TO THE COURSES LEADING TO THE B. S. DEGREE

Students are admitted either upon examination at the University or upon certificates from accredited schools, except that students from other colleges and universities and adult special

NOTE—The College of Engineering Circular giving detailed information concerning the college, may be obtained upon application to the Registrar of the University.

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students are admitted in accordance with the provisions stated on pages 87 and 88.

The requirements for the admission of regular students are stated fully on page 76.

Preparation in Algebra for Engineering

All students entering the College of Engineering are required to pass an examination in algebra before being admitted to the regular algebra classes. It is essential that students in the engineering courses shall possess a good working knowledge of algebra *at the time when they begin their course*, and it is the purpose of the examination to secure this by requiring a review of the subject shortly before entering the University. Students failing in the examination will be required to make up their deficiency by outside study.

In performing the fundamental operations of algebra, such as multiplication and division, the use of parentheses, the solving of numerical and literal equations of the first and second degree, the simplification of fractions and radicals, and the putting of problems into equations, it is of the first importance that the student should have distinct notions of the meaning and reasons for all that he does, and be able to state them clearly in his own language. He should be able to perform all these operations, even somewhat complex, with rapidity, accuracy and neatness. In his preparatory studies the student is advised to solve a great many practical problems, and to describe fully the reasons for the steps taken.

REQUIREMENTS FOR ADMISSION TO THE ADVANCED COURSES LEADING TO THE PROFESSIONAL DEGREE

Students entering the advanced four-year courses leading to the professional degree must present credits for at least thirty semester hours of work of college grade, taken in the College of Letters and Science of the University or in a college of recognized standing having entrance requirements similar to those of the University of Wisconsin. This college work must include a full year of each of the following studies: Mathematics, English, and French or German. The exact number of credits to be offered in these studies is not specified, it being expected that the work will follow the usual curriculum of

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colleges requiring a four-year high school course for admission. Students who take chemistry in their college year will substitute work in the College of Letters and Science of the University for an equivalent amount of chemistry required in the course.

STUDENT ADVISERS

In the selection and arrangement of studies, all students are under the supervision of advisers. It is the duty of the advisers to issue class cards at the opening of each semester, admitting students to their classes, to receive the regular semester reports from instructors, and special reports on deficient students, and to report to the faculty all cases requiring special action.

Reports to parents or guardians on the work of students, are sent from the Registrar's office at the end of each semester.

FEES AND EXPENSES

Tuition for residents of the State of Wisconsin	FREE
Tuition for non-resident students—per semester	$25 00
General fee—first semester	15 00
General fee—second semester	15 00
General fee for four weeks summer term, shop or field work	7 00
Engineering periodical fee for the year	1 00
Gymnasium fee—per semester	1 00

A laboratory fee of $2 per unit-hour (two hours per week of actual work) per semester is charged in all the engineering laboratories, and for the use of surveying instruments in the field. Students taking laboratory theses are charged a fee of $5.

Students working in any of the other laboratories of the University are also required to pay a fee or to make a deposit to cover the cost of the materials and repairs to instruments used by them.

At the beginning of the freshman year, students must be prepared to meet an expenditure of about $70 for laboratory fees, drawing instruments, text books, and military uniform. For the second semester these expenses will not exceed $10. For subsequent years the fees and text books will amount to $15 to $20 per semester.

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Rooms, furnished and unfurnished, can be obtained in the city at reasonable rates. The cost of board in clubs is from $3.00 to $3.50 a week; in private families from $3.00 to $4.50 a week.

EQUIPMENT

Buildings

The work of the college is carried on in four large buildings. The main building is a four-story structure built for the special use of the College of Mechanics and Engineering. It contains the offices, recitation and drawing rooms, and laboratories for work in mechanical engineering, hydraulics, and the testing of materials. A second large building of simple construction contains the main electrical laboratories and the various departments for shop instruction. A third building contains the laboratories for chemical engineering, electrical testing and photometer rooms. Laboratory work in hydraulics is provided for in a large concrete building situated on the shore of Lake Mendota.

For chemistry the engineering students go to the Chemical Building, for physics and other natural sciences to Science Hall, and for language, mathematics, and other similar work, to the literary halls of the University. In this way the students of engineering come into daily contact with the students in the other courses, to the great advantage of all classes.

Libraries

For a general account of the library facilities of the University see Index. The College of Mechanics and Engineering subscribes for about one hundred and seventy-five technical periodicals, and also purchases duplicate copies of standard engineering works of reference, one set of which, with the engineering periodicals, are kept in the engineering reading room, on the first floor of the Engineering Building, in order to facilitate the frequent use of them by the engineering students. The bound files of technical periodicals in the library are unusually complete, and additions are made every year.

Laboratories and Apparatus

The engineering laboratories are well equipped for purposes of instruction and investigation.

THE TESTING LABORATORY is supplied with a 600,000 pound

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hydraulic universal testing machine (designed in the laboratory) taking tension and compression specimens 10 feet and beams 20 feet long; a Riehlé torsion machine taking shafts 15 feet long and 3 inches in diameter; a 50,000 pound Johnson beam machine taking beams 18 feet long; 6 Olson and Riehlé universal machines from 10,000 to 100,000 pounds capacity; a Thurston torsion machine; a Russell impact machine; several small beam and wire machines; and a full complement of accessories; a Smith concrete mixer, a good equipment for tests of plain and reinforced concrete, and appliances for testing road-building material.

THE CEMENT LABORATORY contains a full supply of necessary apparatus for making standard tests; baths, self-recording thermometers, Boehme hammer, complete one-thousand-pound Riehlé and Fairbanks testing machines, etc.

THE HYDRAULIC LABORATORY, which occupies its own special building, is located on the shore of Lake Mendota, immediately adjoining the university pumping station and tank house. The facilities, therefore, are especially good for studying problems where large quantities of water under low heads are required. The university water works pressure storage tanks provide high heads up to about 170 feet. The laboratory is unusually well equipped. It has a thirty-inch centrifugal pump furnishing up to 35,000 gallons per minute, five concrete measuring chambers with a total capacity of about 10,000 cubic feet, various weir boxes and wiers, pipes of different materials and sizes, Venturi, and meters of the disc and piston type, turbines, overshot and tangential wheels, pumps of various types, including two air lift pumps, hydraulic rams, and a full supply of apparatus designed for experimental purposes.

THE MECHANICAL LABORATORY.—This laboratory is well equipped with a variety of steam and gas engines, specially arranged for experimental work. The most important of these are a fifty horse-power cross compound steam engine, and a sixty horse-power, three cylinder, vertical gas engine.

There is also installed a fifteen-ton refrigerating plant, consisting of a Corliss engine direct connected to a horizontal double-acting ammonia compressor. With the above compressor there are installed double pipe condensers and brine coolers,

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brine tanks, brine coils, and ventilating coils for the cooling of rooms.

This laboratory also contains a new twenty-five kilowatt steam turbine, a fifty horse-power two stage air compressor directly connected to a compound condensing engine equipped with the Meyer valve gear; also various other types of steam, gas, gasoline, and hot air engines. The laboratory is also well equipped with a large variety of smaller apparatus and appliances for fuel, gas, oil testing, etc.

THE ELECTRICAL LABORATORIES comprise a dynamo laboratory, a high potential laboratory, a photometry laboratory, and a standardizing laboratory. The equipment of these laboratories is unusually complete, and the department of electrical engineering cooperates with the Wisconsin Railroad Commission in the use of its laboratories for standardizing work.

A further description of these laboratories may be found in the separate bulletin issued by the College of Engineering.

CHEMICAL ENGINEERING AND APPLIED ELECTROCHEMISTRY LABORATORIES.—In the Chemical Engineering Building the first floor and basement are devoted to laboratories for instruction in chemical technology and applied electrochemistry. Two rooms are completely equipped for technical gas and fuel examinations, the equipment comprising all standard forms of analytical apparatus, gas and fuel calorimeters, and pyrometers. Steam stills, evaporators, centrifugals, vacuum dryers, digesters, vacuum and pressure pumps, melting, roasting, and calcimining furnaces, and other similar apparatus are installed for the study of chemical manufacture.

In the crushing and grinding room are various commercial types of coarse and fine crushers and disintegrators for treatment of ores and other raw materials. Magnetic, electrostatic, and other forms of separators are included in the equipment.

The applied electrochemistry equipment comprises a great variety of electrochemical appliances, a complete electroplating and refining room, battery room, two electric furnace rooms with various types of furnaces, and source of power both alternating and direct aggregating over 250 horse-power.

THE BRIDGE ENGINEERING DEPARTMENT owns several autographic extensometers and a deflectometer for determining bridge stresses under moving train loads. The department also possesses a

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large French model of a skew arch bridge, several large size iron models of bridge joints, a good collection of stereotomy models, and a large number of photographs, drawings, and lantern slides illustrating details, erection methods, and complete structures of a great variety of design.

THE SURVEYING LABORATORY.—By an agreement with the director of Washburn Observatory, the surveying laboratory shares in the free use of the extensive apparatus belonging to that observatory, including, in addition to the large equatorial telescope and the meridian circle collimators, transit micrometers, chronograph, sidereal and meantime clocks, zenith telescopes, a transit instrument of the broken type, chronometers, an altazimuth, a universal instrument of the German type, spherometer calipers, and a complete set of meteorological instruments.

In addition to this equipment the surveying laboratory contains all the portable, astronomical, and field instruments needed for extensive triangulation, topographic, hydrographic and railroad surveys, including theodolites, altazimuth, tidal gauge, heliotropes, Kern precise-level and new U. S. C. & G. S. precise-level outfits, sounding apparatus, base-line apparatus, including a new "invar" type, current meters, transits, compasses, levels, plane-tables, telemeters, and such special instruments as plani-meters pantographs, sextants, computing machines, aneroid barometers, etc.

PAVING MATERIAL MUSEUM.—A beginning has been made toward securing an exhibit of paving supplies and samples of both old and new pavements for use in the course on Roads and Pavements.

THE MACHINE SHOP affords excellent facilities for mechanical practice. It embraces a main machine room properly equipped; a carpenter shop supplied with wood-working machines; a forge room provided with forges and their equipment with blast and exhaust fan and annealing and case-hardening furnace; a foundry room whose equipment consists of a cupola, brass furnace, and core oven, with the necessary small tools, a wood-work room supplied with benches, carpenter tools, and wood turning lathes; and a pattern room furnished with the requisite tools.

ORE DRESSING LABORATORY.—It is planned to equip a building, 125x50 feet, during the current year with ore dressing and assay laboratories. While the principal object of the ore dressing lab-

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oratory will be to demonstrate the principles of ore dressing by the use of hand and laboratory apparatus especially designed for the purpose, it is proposed to include also representative machines to familiarize students with actual practice and to provide for experimental and research work.

BACTERIOLOGICAL LABORATORIES.—For a description of these see Index.

THE ENGINEERING MUSEUM contains a collection of models illustrating problems in descriptive geometry, stereotomy and kinematics, besides many models of bridges and hydraulic structures. There are also numerous industrial exhibitions of engineering interest and value.

COURSES OF STUDY AND DEGREES

Courses Leading to the B. S. Degree

The College of Engineering offers six systematic four-year courses leading to the B. S. degree.

CIVIL ENGINEERING.
MECHANICAL ENGINEERING.
ELECTRICAL ENGINEERING.
APPLIED ELECTROCHEMISTRY.
CHEMICAL ENGINEERING.
MINING ENGINEERING.

Students who complete any of the above four-year courses are graduated with the degree of *Bachelor of Science*, the diploma containing a specific designation of the course taken.

Advanced Courses Leading to the Professional Degree

Four advanced four-year courses leading to the professional degree are offered. Students are admitted to these courses on presentation of the equivalent of the freshman year in the College of Letters and Science as specified on page 102. These courses are as follows:

CIVIL ENGINEERING.
MECHANICAL ENGINEERING.
ELECTRICAL ENGINEERING.
CHEMICAL ENGINEERING.

Graduates of these advanced courses will receive the professional degrees of *Civil Engineer*, *Mechanical Engineer*, *Electrical Engineer*, and *Chemical Engineer*.

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Graduate Work

The graduate work in the College of Engineering is a part of the Graduate School of the University and is in charge of an Administrative Committee. Excellent opportunities are offered in the various departments for advanced theoretical work and for research. A special fund is available to devote exclusively to experimental work in the engineering laboratories.

The degrees of *Civil Engineer*, *Mechanical Engineer*, *Electrical Engineer*, and *Chemical Engineer* are conferred as second degrees upon Bachelors of Science in the Civil, Mechanical, Electrical, and Chemical Engineering Courses respectively, (1) who pursue advanced professional study at the University for one year, and present a satisfactory project or thesis; or (2) who present suitable evidence of three years of professional work, of which one must be in a position of responsibility, and present a satisfactory thesis.

The degrees of *Master of Science* and *Doctor of Philosophy* are conferred upon graduates of the engineering courses under the same requirements as apply to graduates of the College of Letters and Science. For a statement of these requirements see Index under Degrees.

Six-Year Courses Leading to the Degree of A. B. and an Engineering Degree

By properly arranging their elective studies students in the College of Letters and Science secure their *B. A.* degree at the end of four years, and the *B. S.* degree in engineering in two additional years. These students will register in the College of Letters and Science during the first four years of residence. They will elect during their collegiate course the studies of the first two years of the engineering course which they plan to pursue later, with the exception of shop work. This may be taken as an extra study, or may be taken during vacation time. Upon receiving the *B. A.* degree they will be admitted as juniors in the College of Engineering.

By utilizing the opportunities offered in the summer session students may in most cases secure the professional degree at the end of the sixth year.

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Modern Language Requirements in all Engineering Courses*

1. When the entrance language requirement is fulfilled (see Index): There are required 8 semester hours in French or German. (When French or German is offered for entrance, then the same language should preferably be continued in the University.)

2. When the entrance language requirement is not fulfilled: Students who present the required number of units for entrance and who are graduates of accredited schools will be admitted without a preparation in language, but subject to a condition in the same. In this case there are required 16 semester hours in French or German. If French be taken and an average mark of 85, or over, be made in the first 8 hours, then the remaining 8 hours may be taken in another language.

Summer Vacation Work

All engineering students are required to take summer vacation work in addition to the work of the four academic years. For civil engineering students this work consists of four weeks field work, following either the sophomore or junior year. For mechanical, electrical and chemical engineers four weeks shop work is required. The mining engineers are required to take six weeks surveying, following either the freshman or sophomore year, and class work in mining and geology, following the junior year.

Inspection Trips

An inspection trip is made by the junior class during the week of the Easter recess. In this tour the great manufacturing establishments and other important private and public engineering works in Chicago, Milwaukee, and elsewhere are visited and written reports submitted. These tours are made under the guidance of the professors, and are required of all juniors, unless excused by the faculty. Students who may be excused are required to present a report at the opening of the senior year on assigned work of a similar character.

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* For satisfactory reasons, the faculty will permit the substitution of Spanish for French or German.

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Non-Resident Lecturers

It is the practice of the college to invite each year a number of prominent engineers to deliver one or more lectures before the student body on various phases of engineering practice. The purpose of these lectures is to enliven the interest of the student and to broaden his horizon rather than to give specific instruction. The following are some of the subjects touched upon during the last three years: Railroad Rates; The Ceramic Industries; Reinforced Concrete; The Engineer as a Business Man; Portland Cement Manufacture; Gas Engineering; Sewage Disposal; The Telephone Engineer; The Great Lake Survey; Producer Gas and Gas Producers; Railway Signaling; Erection of Structures.

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OUTLINE OF ENGINEERING COURSES *

CIVIL ENGINEERING COURSE

LEADING TO THE B. S. DEGREE

Freshman Year

FIRST SEMESTER		SECOND SEMESTER	
Subject and course number	Hrs. per week	Subject and course number	Hrs. per week
German (2F), or French (5E)	4	German (2E), or French (5E)	4
English (1)	3	English (1)	3
Mathematics (101) (Algebra)	5	Mathematics (102) (Trigonometry and Analytical Geometry)	5
Chemistry (2)	3	Chemistry (2)	3
Drawing (1)	3	Drawing (2)	3
Topographical Engineering (2)	1	Topographical Engineering (2)	1

Sophomore Year

Mathematics (104)	5	Mathematics (105)	4
Physics (101)	5	Physics (101)	5
Topographical Engineering (1) (3)	5	Mechanics (1) (2a)	5
Drawing (3)	3	Topographical Engineering (1) (4)	4
		Railway Engineering (1)	2
†Topographical Engineering (6)	*4		

Junior Year

Mechanics (2b) (3) (4)	7	Mechanics (4)	2
Structural Engineering (1)	2	Railway Engineering (3) (10)	4
Railway Engineering (2a) (2b)	5	Structural Engineering (5a) (7a)	7
Hydraulic Engineering (1) (2)	3	Mechanical Laboratory	1
a { Steam Engineering (7)	2	Hydraulic Engineering (10)	2
a { Mechanical Laboratory (3)	1	a { Railway Engineering (6)	2
or ‡ b { Chemistry (11)	3	a { Astronomy (6) or Topographical Engineering (5)	3
		or ‡ b { Chemistry (14)	5

Senior Year

Structural Engineering (4) (7b)	8	Railway Engineering (11)	1
Hydraulic Engineering (11)	3	Hydraulic Engineering (14)	1
Applied Electromagnetism (6)	2	Applied Electromagnetism (5)	2
§ Electives	6	Alternating Currents (8)	2
		Contracts and Specifications (1)	2
		§ Thesis and Elective	11

* In reckoning the hours per week required for the various studies, two hours of laboratory, drawing room, field, or shop work count as one hour of class-room work, which is the unit in this outline.

† May be taken at the end of either the sophomore or junior year.

‡ Option b should be selected by students specializing in sanitary engineering.

§ Bacteriology (1) and (8), 6 unit hours; to be taken by students specializing in sanitary engineering.

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ADVANCED CIVIL ENGINEERING COURSE

LEADING TO THE DEGREE OF C. E.

The equivalent of the freshman year in the College of Letters and Science is required for admission to this course. See p. 102.

First Year

FIRST SEMESTER		SECOND SEMESTER	
Subject and course number	Hrs. per week	Subject and course number	Hrs. per week
Mathematics (102) (Trigonometry and Analytical Geometry)	5	Mathematics (104)	5
Chemistry (1)	5	Chemistry (1)	5
Drawing (1)	3	Drawing (2)	3
Physics (101)	5	Physics (101)	5
Topographical Engineering (2)	1	Topographical Engineering (2)	1

Second Year

Mathematics (105)	4	Railway Engineering (1)	2
Mechanics (1) (2a)	5	Mechanics (2b) (3) (4)	7
Drawing (3)	3	Structural Engineering (5a)	4
Topographical Engineering (1) (3)	5	Topographical Engineering (1) (4)	4
Steam Engineering (7)	2	Mechanical Laboratory	2
Mechanical Laboratory (3)	1		
Topographical Engineering (6)	4		

Third Year

Hydraulic Engineering (1) (2)	3	Hydraulic Engineering (10)	2
Railway Engineering (2a) (2b)	5	Railway Engineering (3) (6) (10)	6
Economics (1)	3	Economics (1)	3
Structural Engineering (1)	3	Structural Engineering (7)	4
Applied Electromagnetism (6)	2	Alternating Currents (8)	2
Applied Electromagnetism (5)	2	Astronomy (6) or Topographical Engineering (5)	2 or 3
Mechanics (4)	2		

Fourth Year

Structural Engineering (4) (7b)	6	Railway Engineering (11)	1
Hydraulic Engineering (11)	3	Hydraulic Engineering (14)	1
Elective and Thesis	5	Contracts and Specifications (1)	2
Free Electives*	5	Elective and Thesis	10
		Free Electives*	5

*To be taken preferably in the College of Letters and Science.

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MECHANICAL ENGINEERING COURSE

LEADING TO THE B. S. DEGREE

Freshman Year

FIRST SEMESTER		SECOND SEMESTER	
Subject and course number	Hrs. per week	Subject and course number	Hrs. per week
German (2E), or French (5E)	4	German (2E), or French (5E)	4
English (1)	3	English (1)	3
Mathematics (101)	5	Mathematics (102)	5
Drawing (1)	3	Drawing (2)	3
Chemistry (2)	3	Chemistry (2)	3
Shop	1	Shop	1

Sophomore Year

Mathematics (104)	5	Mathematics (105)	4
Physics (101)	5	Physics (101)	5
Drawing (3)	3	Mechanics (1) (2a)	5
Shop	5	Machine Design (1)	4

Junior Year

Mechanics (2b) (3) (4)	7	Mechanics (4)	1
Machine Design (3)	5	Machine Design (3)	5
Steam and Gas Laboratory (5)	1	Steam and Gas Laboratory (1)	2
Steam and Gas Engineering (1) (2)	5	Steam and Gas Engineering (4)	4
Shop	2	Shop	3
		Hydraulic Engineering (1) (2)	3
		Elective	2 or 3

Senior Year

Steam and Gas Engineering (5)	2	Steam and Gas Engineering (5)	2
Commercial Engineering (1)	3	Commercial Engineering (2)	2
Applied Electromagnetism (3) (5)	5	Alternating Currents (5) (7)	5
Steam and Gas Laboratory (2)	2	Steam and Gas Laboratory (4)	1
Hydraulic Engineering (4)	3	Contracts (1)	2
Elective and Thesis	5	Elective and Thesis	8

There is also required four weeks summer shop work which may be taken during any vacation period.

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ADVANCED MECHANICAL ENGINEERING COURSE

LEADING TO THE M. E. DEGREE

The equivalent of the freshman year in the College of Letters and Science is required for admission to this course. See p. 102.

First Year

FIRST SEMESTER. Subject and course number	Hrs. per week	SECOND SEMESTER. Subject and course number	Hrs. per week
Mathematics (102)	5	Mathematics (104)	5
Chemistry (1)	5	Chemistry (1)	5
Drawing (1)	3	Drawing (2)	3
Physics (101)	5	Physics (101)	5
Shop	1	Shop	1

Second Year

Mathematics (105)	4	Machine Design (1)	4
Mechanics (1) (2a)	5	Mechanics (2b) (3)	5
Drawing (3)	3	Testing Laboratory	2
Shop	4	Shop	3
Topographical Engineering (8)	3	Elective	*5

Third Year

Machine Design (3)	5	Machine Design (3)	5
Steam and Gas Engineering (1) (2)	5	Steam and Gas Engineering (4)	3
Shop	3	Hydraulic Engineering (1) (2)	3
Mechanics (4)	1	Alternating Currents (5) (7)	5
Steam and Gas Laboratory (5)	1	Steam and Gas Laboratory (1)	2
Applied Electromagnetism (3) (5)	5	Elective	2

Fourth Year

Steam and Gas Engineering (5)	2	Steam and Gas Engineering (5)	2
Commercial Engineering (1)	3	Commercial Engineering (2)	2
Economics (1)	3	Economics (1)	3
Hydraulic Engineering (4)	3	Contracts	2
Steam and Gas Laboratory (2)	2	Steam and Gas Laboratory (4)	1
Elective and Thesis	4	Elective and Thesis	5
Free Elective	3	Free Elective	3

There is required four weeks summer shop work which may be taken during any vacation period.

* Mathematics 110, three hours, recommended.

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ELECTRICAL ENGINEERING COURSE

LEADING TO THE B. S. DEGREE

Freshman Year

FIRST SEMESTER		SECOND SEMESTER	
Subject and course number	Hrs. per week	Subject and course number	Hrs. per week
German (2E), or French (5E)	4	German (2E), or French (5E)	4
English (1)	3	English (1)	3
Mathematics (101) (Algebra)	5	Mathematics (102) (Trigonometry and Analytical Geometry)	5
Drawing (1)	3	Drawing (2)	3
Chemistry (2)	3	Chemistry (2)	3
Shop	1	Shop	1

Sophomore Year

Mathematics (104)	5	Mathematics (105)	4
Physics (101)	5	Physics (101)	5
Machine Design (1)	4	Mechanics (1) (2a)	5
Chemistry (12)	3	Chemistry (12)	2
Shop	2	Drawing (3)	3

Vacation work, 4 hours

Junior Year

Mechanics (2b) (3) (4)	7	Mechanics (4)	1
*Physics (104)	3	Mechanical Laboratory (1)	1
Applied Electromagnetism (1)	4	Applied Electromagnetism (1) (2)	4
Steam Engineering (6)	3	Steam Engineering (6)	3
Machine Design (2)	3	Machine Design (3)	2
		Alternating Currents (1)	3
		Hydraulic Engineering (1) (2)	3
		Elective	3

Senior Year

Hydraulic Engineering (4)	3	Contracts	2
Mechanical Laboratory (2)	2	Alternating Currents (3) (2)	5
Alternating Currents (3) (2)	5	Thesis and Elective	6
Applied Electromagnetism (2) (4)	2	Elective	7
Thesis	2		
Elective	6		

Electrical installations, course 5, is required and may be taken in either semester.

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*Students who wish to elect Mathematics 110 in the junior year may postpone physics 104 until the senior year.

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ADVANCED ELECTRICAL ENGINEERING COURSE

LEADING TO THE E. E. DEGREE

The equivalent of the freshman year in the College of Letters and Science is required for admission to this course. See p. 102.

First Year

FIRST SEMESTER		SECOND SEMESTER	
Subject and course number	Hrs. per week	Subject and course number	Hrs. per week
Mathematics (102)	5	Mathematics (104)	5
Chemistry (1)	5	Chemistry (1)	5
Drawing (1)	3	Drawing (2)	3
Physics (101)	5	Physics (101)	5
Shop	1	Shop	1

Second Year

Mathematics (105) (110)	7	Drawing (3)	3
Mechanics (1) (2a)	5	Mechanics (2b) (3) (4)	7
Machine Design (1)	4	Topographical Engineering (8)	3
Chemistry (12)	3	Mathematics (110)	3
		Shop	2

Vacation work, 4 hours.

Third Year

Applied Electromagnetism (1)	4	Applied Electromagnetism (1) (2)	4
Steam Engineering (1) (2)	5	Steam Engineering (1) (2)	3
Machine Design (2)	3	Machine Design (3)	2
Mechanics (4)	1	Alternating Currents (1)	3
Economics (1)	3	Hydraulic Engineering (1) (2)	3
Physics (104)	3	Mechanical Laboratory (1)	2
		Economics (1)	3

Fourth Year

Applied Electromagnetism (2) (4)	2	Contracts	2
Alternating Currents (3) (2)	5	Alternating Currents (3) (2)	5
Mechanical Laboratory (2)	2	Thesis and Elective	13
Hydraulic Engineering (4)	3		
Thesis and Elective	8		

Electrical Installations, course 5, is required and may be taken in either semester.

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CHEMICAL ENGINEERING COURSE

LEADING TO THE B. S. DEGREE

Freshman Year

FIRST SEMESTER		SECOND SEMESTER	
Subject and course number	Hrs. per week	Subject and course number	Hrs. per week
German (2E), or French (5E)	4	German (2E), or French (5E)	4
English (1)	3	English (1)	3
Mathematics (101) (Algebra)	5	Mathematics (102) (Trigonometry and Analytical Geometry)	5
Drawing (1)	3	Drawing (2)	3
Chemistry (2)	3	Chemistry (2)	3
Shop	1	Shop	1

Sophomore Year

Mathematics (104)	5	Mathematics (105)	4
Physics (101)	5	Physics (101)	5
Drawing (3)	3	Mechanics (1) (2a)	5
Chemistry (11)	5	Machine Design (1)	4

Summer course in chemistry or its equivalent in industrial work.

Junior Year

Mechanics (2b) (3) (4)	7	Mechanics (4)	1
Steam Engineering (6)	2	Steam Engineering (6)	2
Machine Design (2)	3	Machine Design (4)	2
Chemistry (20)	5	Mechanical Laboratory (6)	3
Physical Chemistry (30)	2	Physical Chemistry (30)	4
		Applied Electromagnatism (6)	2
		Shop (14)	3
		Chemical Technology (1)	2

Inspection tour through industrial establishments.

Senior Year

Alternating Currents (8)	2	Contracts and Specifications (1)	2
Applied Electromagnetism (5)	2	Chemical Technology (3) (4) (6)	9
Mechanical Laboratory (6)	1	Thesis and Electives	9
Chemical Technology (2) (5) (6)	8		
Thesis and Electives	7		

Courses from which electives may be chosen.

Applied Electrochemistry 1, 2, 6.
Chemical Technology 6, 7.
Advanced Physical Chemistry.
Advanced Inorganic Chemistry.
Advanced Organic Chemistry.
Geology.
Mineralogy.
Assaying.
Bacteriology.
Steam Engineering.
Structural Engineering.
Hydraulic Engineering.
Electrical Engineering.

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ADVANCED CHEMICAL ENGINEERING COURSE

LEADING TO THE DEGREE OF CH. E.

The equivalent of the freshman year in the College of Letters and Science is required for admission to this course. See p. 102.

First Year

FIRST SEMESTER		SECOND SEMESTER	
Subject and course number	Hrs. per week	Subject and course number	Hrs. per week
Mathematics (102)	5	Mathematics (104)	5
Drawing (1)	3	Drawing (2)	3
Chemistry (1)	5	Chemistry (1)	5
Physics (101)	5	Physics (101)	5
Shop	1	Shop	1

Second Year

Mathematics (105)	4	Drawing (3)	3
Machine Design (1)	3	Mechanics (2b) (3) (4)	7
Chemistry (20)	5	Chemical Technology (1)	2
Mechanics (1) (2a)	5	Chemistry Elective	5
Chemistry (11)	3	Applied Electromagnetism (6)	2

Summer course in chemistry, or its equivalent in industrial work.

Third Year

Physical Chemistry (30)	2	Physical Chemistry (30)	4
Mechanics (4)	1	Steam Engineering (6)	2
Steam Engineering (6)	2	Mechanical Laboratory (6)	2
Alternating Currents (8)	2	Machine Design (4)	2
Applied Electromagnetism (5)	2	Economics (1)	3
Machine Design (2)	3	Chemical Technology (1)	2
Economics (1)	3	Elective	5
Elective	4		

Fourth Year

Mechanical Laboratory (6)	2	Chemical Technology (3) (4) (6)	9
Chemical Technology (2) (5) (6)	8	Contracts (1)	2
Applied Electrochemistry (1)	5	Elective and Thesis	8
Structural Engineering (11)	2		
Elective and Thesis	3		

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APPLIED ELECTROCHEMISTRY COURSE

LEADING TO THE B. S. DEGREE

Freshman Year

FIRST SEMESTER		SECOND SEMESTER	
Subject and course number	Hrs. per week.	Subject and course number	Hrs. per week
German (2E), or French (5E)	4	German (2E), or French (5E)	4
English (1)	3	English (1)	3
Mathematics (101) (Algebra)	5	Mathematics (102) (Trigonometry and Analytical Geometry)	5
Drawing (1)	3	Drawing (2)	3
Chemistry (2)	3	Chemistry (2)	3
Shop	1	Shop	1

Sophomore Year

Mathematics (104)	5	Mathematics (105)	4
Physics (101)	5	Physics (101)	5
Drawing (3)	3	Mechanics (1) (2a)	5
Chemistry (11)	5	Machine Design (1)	4

Summer course in chemistry; or its equivalent in industrial work.

Junior Year

Mechanics (2b) (3) (4)	7	Mechanics (4)	1
Applied Electromagnetism (1)	4	Applied Electromagnetism (1) (2)	4
Chemistry (20) (31)	9	Chemistry (31)	4
		Alternating Currents (5)	2
		Chemical Technology (1)	2
		Alternating Currents (7)	3
		Elective	3

Inspection tour through industrial establishments.

Senior Year

Applied Electrochemistry (1)	5	Applied Electrochemistry (2) (6)	5
Chemical Technology (5) (6)	6	Chemical Technology (4)	5
Steam Engineering (7)	2	Contracts and Specifications (1)	2
Mechanical Laboratory (3)	2	Thesis and Elective	7
Thesis and Elective	5		

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MINING ENGINEERING COURSE

LEADING TO THE B. S. DEGREE

Freshman Year

FIRST SEMESTER		SECOND SEMESTER	
Subject and course number	Hrs. per week	Subject and course number	Hrs. per week
German (2E), French (5E), or Spanish (2EC)	4	German (2E), French (5E) or Spanish (2EC)	4
English (1)	3	English (1)	3
Mathematics (101) (Algebra)	5	Mathematics 102 (Trigonometry and Analytical Geometry)	5
Drawing (1)	3	Drawing (2)	3
Topographical Engineering (2)	1	Topographical Engineering (2)	1
Chemistry (2)	3	Chemistry (2)	3

Summer school surveying six weeks.

Sophomore Year

Mathematics (104)	5	Mathematics (105)	4
Physics (101)	5	Physics (101)	5
Chemistry (11)	4	Chemistry (50)	3
Geology (6)	5	Drawing (3)	3
		Geology (6)	5

Junior Year

Mechanics (1) (2a)	5	Mechanics (2b, 3)	5
Steam and Gas Engineering (6)	4	Steam and Gas Engineering (11)	2
Railway Engineering (4)	2	Applied Electromagnetism (6)	2
Geology (1)	5	Hydraulics (1) (2)	3
Mining (1)	3	Geology (2)	5
		Mining (2)	3

Summer class or work in mining and geology.

Senior Year

Mechanics (4)	2	Mechanics (4)	1
Applied Electromagnetism (5)	2	Structural Engineering (9)	3
Geology (11)	3	Alternating Current (8)	2
Geology (8)	3	Geology (11)	3
Mining (3), (4), (5)	5	Geology (8)	3
Mining (11)	3	Mining (5) (7)	5
		Thesis and Elective	5

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COMBINATION ENGINEERING AND COMMERCE COURSE

By electing the following group of studies in economics, students pursuing the five-year course may get all the essential studies of the Course in Commerce, together with a full engineering course.

First Year: Physiography and Physical Geography, 3 hours.

Second Year: Elementary Economics, 3 hours for one semester; Commercial Geography, 3 hours for one year.

Third Year: Money and Banking and Transportation, 3 hours; Commercial Law, 3 hours.

Fourth Year: Group in Banking and Finance, Transportation, or the Manufacturing Industries, 3 hours; Business Administration, 2 hours.

Fifth Year: Business Administration, 2 hours; Group and Thesis, 4 hours (if the thesis is taken in Commerce).

Elective for Students in the College of Letters and Science

Students who plan to graduate in engineering, after taking a degree in the College of Letters and Science, should aim to make the following elections during the undergraduate course, in order that the engineering course may be completed in two additional years:

Mathematics 101 to 105; Physics 1 or 101; Chemistry 1 or 2; Mechanical Drawing 1, 2, and 3; Topographical Engineering 2, 3, and 4, or Machine Design 1; Applied Mechanics 1, 2.

It is well also to elect some or all of the freshman and sophomore shop work, as an extra study.

Graduation in More than One of the Engineering Courses

Graduates in any of the engineering courses may graduate in any other engineering course after one year of additional study. Students who contemplate doing this should, however, make their elections, especially in the senior year, with this end in view.

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DEPARTMENTS OF INSTRUCTION

The unit of reckoning is one hour of class-room work per week, making a one-hour study. Two hours drawing, laboratory, field, or shop work (which requires no outside preparation) count as one hour of recitation.

ENGLISH

ASSOCIATE PROFESSOR LATHROP; ASSISTANT PROFESSORS BEATTY, DICKINSON, YOUNG; DR. ELLIOTT, DR. LEONARD, DR. WOOLLEY; MR. COOK, MR. NIEDIG, AND MR. WATT.

1. Freshman English. English prose style. Composition. *Throughout the year; three unit-hours.*

GERMAN

ASSISTANT PROFESSORS EVANS, KIND; MR. DEIHL, MR. HOEGER, MR. KIRSHMAN.

2E. *First semester:* Review of grammar. Narrative and historical prose.

Second semester: One drama and critical prose. *Four times a week at* 8, 9, 2, *and* 3. Five sections.

FRENCH

MR. GALLAND, MR. INGLIS.

5E. Elementary French for Engineers. In the first semester the work will be for the most part the same as that in course 1 (College of Letters and Science), except that more attention will be paid to reading. During the second semester Herdler's *Scientific Reader* or other work of similar character will be introduced. Three sections. *Four unit-hours.* Mr. GALLAND, Mr. INGLIS.

SPANISH

MR. COOL, MR. MILLER.

2EC. Elementary. Giese's *First Spanish Book* and other easy prose. *Three sections. Four hours a week, at* 8 *and* 9. Mr. COOL, Mr. MILLER.

Courses 7C and 8C (see Index under French) are also open to students in engineering.

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MATHEMATICS

PROFESSOR SLICHTER; ASSOCIATE PROFESSOR MASON; DR. BIRKHOFF, MR. CHANEY, MR. GRIMES, MR. KUESTERMANN, MR. MARCH, MR. SMITH, DR. UNDERHILL, DR. WOLFF.

Note: All the following courses, except 110, are repeated each semester.

101. Algebra, Trigonometry, and Graphic Methods. This course includes a variety of work in algebra, trigonometry, and analytic geometry, combined with drill in computation methods, use of slide rule, etc. *First semester; M., Tu., W., Th., F.* Required of freshmen in engineering.

102. Analytical Geometry and Trigonometry. In this course trigonometry is completed and further work in plane and solid analytic geometry is given. *Second semester; M., Tu., W., Th., F.* Required of freshmen in engineering.

104. Calculus. Differential and Integral Calculus. For all courses. *First semester; M., Tu., W., Th., F.*

105. Calculus. Continuation of 104 for all courses. Elementary work in differential equations is given in this course. *Second semester; M., Tu., W., Th.*

110. Higher Mathematics. Differential Equations, Definite Integrals, Fourier Series, and other subjects of immediate importance to engineering students are studied in this course. Elective to juniors, seniors, and graduate students. *Throughout the year; three unit-hours.*

201. Elementary Practical Mathematics. A combined course in statics and trigonometry. Required of sophomores in agriculture. *Second semester; three unit-hours.* Dr. Wolff.

PHYSICS

PROFESSOR MENDENHALL; ASSISTANT PROFESSORS GAGE, INGERSOLL, TAYLOR; DR. ROEBUCK, DR. SMITH, MR. TERRY; MR. FORSYTHE, MR. HEIL AND ASSISTANTS.

101. General Lectures and Introductory Laboratory Practice. Required of sophomores in engineering. *Throughout the year; lectures, M., at 5, Th., at 4.* Mr. TERRY. *Two recitations in sections, at hours to be assigned.* Dr. SMITH, Dr. ROEBUCK, and Mr. HEIL. *Two laboratory periods a week.* Assistant Professor GAGE and assistants.

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104. Laboratory Course in Electrical and Magnetic Measurements. Testing and calibration of electrical instruments, and determination of constants. Required of juniors in Electrical Engineering. *First semester; three hours a week.* Mr. BRAINARD and Mr. FORSYTHE.

105. Advanced Electrical Measurements. Elective for those who have had course 104 or its equivalent. The determination of self-inductance, mutual inductance, capacity, etc., by the most recent methods. *Hours and credits to be arranged.* Mr. BRAINARD and Mr. FORSYTHE.

7. High Temperature Measurements. A laboratory course in the measurements of high temperatures by the most recent optical and electrical methods. *Four laboratory hours per week accompanied by lectures every other week. First semester; two unit-hours.* Professor MENDENHALL and Dr. INGERSOLL.

9. Thesis. Open to those who have completed courses 101 and either 104 or 7. Professor MENDENHALL and Assistant Professor TAYLOR.

CHEMISTRY

PROFESSORS KAHLENBERG, LENHER; ASSISTANT PROFESSORS KOELKER, WALTON; DR. HALL, DR. MATHEWS, AND ASSISTANTS.

2. General Chemistry and Quantitative Analysis. For freshmen in the College of Engineering. *Throughout the year; two lectures, and two two-hour laboratory periods a week; three unit-hours.* Professor KAHLENBERG, Assistant Professor WALTON, and assistants.

11. Quantitative Analysis. Introductory laboratory course accompanied by weekly lectures. Required of sophomores in electrical, electrochemical, chemical and mining engineering. Professor LENHER, Dr. HALL, and Mr. MOTT.

12. Quantitative Analysis. An advanced laboratory course, being a continuation of course 11, which must precede it. Professor LENHER.

13. Gas Analysis. A laboratory course in practical gas analysis. *First semester.* Dr. HALL.

14. Water Analysis. A laboratory course in the analysis of water and sewage. *First semester.* Dr. HALL.

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15. Electrochemical Analysis. A study of the application of the electric current to chemical analysis. *First semester.* Dr. HALL.

16. Industrial Analysis. A laboratory course in the proximate analysis of commercial products. *Second semester.* Dr. HALL.

17. Chemical Preparations. A laboratory course in the preparation of typical inorganic compounds. Professor LENHER.

20. Organic Chemistry. Lectures and laboratory work. In the first semester the work will be chiefly on the aliphatic, and in the second semester on the aromatic compounds. *Throughout the year; lectures, Tu., Th., at* 8, *and six hours laboratory work.* Assistant Professor KOELKER and Mr. MCDANIEL.

24. Advanced Organic Chemistry. One lecture a week throughout the year on selected topics. Assistant Professor KOELKER.

30. Physical Chemistry. The lectures and recitations are supplemented by laboratory exercises in physico-chemical measurements. Must be preceded by Chemistry 1. *Throughout the year; lectures and recitations, M., W., at* 8; *five unit-hours.* Professor KAHLENBERG and Dr. MATHEWS.

31. Electrochemistry. Lectures and recitations. Laboratory work in electrochemical measurements supplements the lectures, and with them makes a full study. *First semester; lectures, W., F., at* 8. *Laboratory work throughout the year.* Dr. MATHEWS.

32. Thermal Chemistry. *Second semester; lectures M., at* 8, *and one three-hour laboratory period a week.* Dr. MATHEWS.

35. Advanced Physical Chemistry. Lectures on selected topics. *Second semester; W., at* 8. Dr. MATHEWS.

37. Research Work in Physical Chemistry. *Throughout the year; daily; hours to be arranged.* Professor KAHLENBERG.

50. Assaying. A course in practical assaying. *Second semester; hours to be arranged.* Professor LENHER and Mr. MOTT.

51. Advanced Inorganic Chemistry. Special attention is given to the discussion of modern theories of chemistry. *Throughout the year; lectures Tu., Th., at* 11. Professor LENHER.

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ASTRONOMY

PROFESSOR COMSTOCK.

6. Astronomical Practice. Theory and use of the simpler instruments used in astronomical and geodetic field work. Determination of time, latitude, and the direction of the meridan, together with drill in numerical computations. *Second semester; until May 1, twice a week at an hour to be arranged; after May 1, three evening meetings a week.* Elective for juniors in Civil Engineering.
7. Advanced Field Astronomy. Spherical astronomy, the method of least squares, theory and practice of the more refined methods for the determination of time, latitude, and azimuth. *Throughout the year; two unit-hours.* Open to election by students who have completed course 6.

GEOLOGY

PROFESSORS LEITH, WINCHELL; ASSISTANT PROFESSORS BLACKWELDER, MARTIN; MR. MEAD, AND MR. STEIDTMANN.

1. General Geology. *First semester; M., Tu., W., Th., F., at* 12. Assistant Professor BLACKWELDER.
2. Applied Geology, including economic geology, map work and field geology. *Second semester; five unit-hours.* Professor LEITH and Assistant Professor BLACKWELDER.
4. Physiography and Geography. *Throughout the year; five unit-hours; lectures Tu., Th., F., at* 9, *and laboratory hour to be arranged.* Assistant Professor MARTIN and assistant.
4a. Physical Geography for Commerce Students. *First semester; M., W., at* 10 *and quiz hour to be arranged.* Assistant Professor MARTIN.
5. Regional Geography. *Throughout the year; M., W., at* 10. Assistant Professor MARTIN.
6. General Mineralogy. *Throughout the year; M., Tu., W., Th., F., at* 11. Professor WINCHELL and Mr. STEIDTMANN.
7. Short Course in Mineralogy. *First semester; Tu., Th., F., at* 2. Professor WINCHELL and Mr. STEIDTMANN.
7a. Short Course in Petrology. *Second semester; Tu., Th., F., 2 to* 4. Mr. STEIDTMANN.
8. Petrology. *Throughout the year; M., W., F., 8 to* 10. Professor WINCHELL.
9. Advanced Physiography. *Second semester; Tu., Th., at* 10: *two unit-hours.* Assistant Professor MARTIN.

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11. Economic Geology. *Throughout the year; M., W., F., at* 4. Alternates with course 15. (To be given in 1909–10.) Professor LEITH.
12. Historical Geology. *Second semester; M., Tu., W., Th., F., at* 9. Assistant Professor BLACKWELDER.
14. Principles of Structural Geology. *First semester; Tu., Th., at* 4. Professor LEITH.
15. Metamorphism. *Throughout the year; M., W., F., at* 4. Alternates with course 11. Professor LEITH.
16. Metamorphic Rocks. Laboratory work, supplementary to course 15. *Throughout the year; Tu., W.,* 2 *to* 4. Mr. MEAD.
17. Principles of Pre-Cambrian Geology. *Second semester; Tu., Th., at* 4. Alternates with course 18. (Not given in 1908–1909.) Professor LEITH.
18. Lake Superior Geology. *Second semester; Tu., Th., at* 4. Alternates with course 17. Professor LEITH.
19. Petrology of Lake Superior Rocks. *Three unit-hours.* Professor WINCHELL.
20. Advanced Mineralogy. Hours to be arranged. Professor WINCHELL.
21. Paleontology. *First semester; M., W., F., at* 9. Assistant Professor BLACKWELDER.
22. Research Work for Graduates. A full or double study running through the year, as desired by individual students.
23. Geological Seminary. *F., at* 5.
24. Advanced map study. *Second semester; hours to be arranged; two unit-hours.* Assistant Professor BLACKWELDER.

BACTERIOLOGY AND HYGIENE

PROFESSOR RAVENEL; ASSOCIATE PROFESSOR FROST; MR. FULLER, MR. BOWLES, MR. NELSON.

Primarily for Undergraduates

1. General Bacteriology. A course designed to give an understanding of the morphology and physiology of bacteria, and laboratory training in cultural and microscopical technique. *First semester; lectures and laboratory; three unit-hours.* Given in the College of Letters and Science. Associate Professor FROST, Mr. FULLER and Mr. NELSON.

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For Undergraduates and Graduates

8. Biology and Chemistry of Water Supplies. Bacteriology 1 is a prerequisite study. This course considers the technique of water examination, the hygiene of water-borne diseases, the examination of filters, disposal of sewage, and the interpretation of analyses, bacteriological and chemical, and laboratory work. *Three unit-hours.* Professor RAVENEL, Mr. FULLER and Mr. BOWLES.

METEOROLOGY

Mr. E. R. MILLER of the U. S. Weather Bureau.

For Undergraduates

1. Meteorology. A course of lectures on the stormy phenomena of the atmosphere, giving especial attention to the explanation of the movements of the air and of the transformations of the moisture of the air in terms of the laws of physics; and practical work in measuring the barometric pressure, temperature, rainfall, wind, humidity, and evaporation with standard instruments. In the course the work of the U. S. Weather Bureau is explained and its results applied to problems arising in the work of the farmer, engineer and teacher. *First semester; two lectures and one practice period a week.*
2. Climatology. Lectures on the methods and materials of climatology, followed by study of the climates of the world and of special regions with reference to their physical causes, and exercises in the discussion of climatic data. *Second semester; two lectures and one practice period a week.*

MECHANICAL DRAWING

PROFESSOR PHILLIPS; ASSISTANT PROFESSOR MILLAR; MR. BRANDEL, MR. EGELHOFF, MR. ORTH, AND MR. WOOD.

1. Elements of Drawing. Working drawings; Third angle projection. Lettering, Tracing, and Blue Printing. Adams' *Mechanical Drawing. First semester; three two-hour drawing periods weekly; three unit-hours.* Professor PHILLIPS, Mr. BRANDEL, Mr. ORTH, and Mr. WOOD.

   Required of freshmen in engineering.

2 Elements of Drawing. Working drawings; Lettering and Sketching. Isometric and Cabinet drawing. Adams' *Me-*

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chanical Drawing. Second semester; three two-hour drawing periods weekly; three unit-hours. Professor PHILLIPS, Mr. BRANDEL, Mr. ORTH, and Mr. WOOD.

Required of freshmen in engineering.

3. Descriptive Geometry. Problems relating to the point, line and plane. The generation and classification of lines and surfaces; tangent planes to surfaces; plane sections, intersections and developments. Phillips and Millar's *Descriptive Geometry. Repeated each semester. One recitation, and two two-hour drawing periods weekly; three unit-hours.* Assistant Professor MILLAR and Mr. EGELHOFF.

Required of sophomores in engineering.

4. Freehand Lettering. A continuation of the lettering work in courses 1 and 2. *Second semester; two one-hour periods weekly; one unit-hour.* Professor PHILLIPS.

Elective for engineering students.

5. Perspective. Measurement of lines in perspective. Parallel, angular and oblique perspective. Perspective of circles. *Second semester; two two-hour drawing periods weekly; two unit-hours.* Professor PHILLIPS.

Elective for engineering students.

APPLIED MECHANICS

PROFESSOR MAURER; ASSISTANT PROFESSOR BURNSIDE; MR. KOMMERS, MR. MCCULLOGH, MR. MILLER, MR. WITHEY.

1. Statics. Treated, as are all the following courses, with special reference to the requirements of engineers. Resolution and composition of forces; center of gravity; principles of equilibrium with numerous applications. Graphic as well as algebraic methods are used. *First ten weeks of each semester; three unit-hours.*

2. Mechanics of Materials. Simple tension, compression and shear; riveted joints; moment and shear diagrams; moment of inertia of plane figures; strength and stiffness of beams, columns and shafts; combined stress and resilience. 2*a*. *Last eight weeks of each semester; two unit-hours.* 2*b*. *First ten weeks of each semester; three unit-hours.*

3. Dynamics. Relates principally to rigid bodies; laws of

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motion; translation and rotation; work and energy; impulse and momentum. *Last eight weeks of each semester; two unit-hours.*

4. Materials of Construction. Principally laboratory work; assigned readings and reports; also the preparation and manufacture of materials. *First and second semester; one or two unit-hours.*

5. Advanced Mechanics of Materials. Inertia circle and ellipse; kern; beams of unsymmetrical section; curved beams; principle of least work; flat plates; thick cylinders, etc. *Second semester; two unit-hours.* Professor MAURER.

Elective for students who have had course 2 or its equivalent.

6. Elements of Mechanics. A general course with emphasis on topics of special interest to the class. Algebra and trigonometry are prerequisites. *First semester; two unit-hours.* Professor MAURER.

Elective for students in the College of Letters and Science.

7. Advanced Technical Mechanics. A review and extension of the principles and equations of Dynamics as presented in course 3 with applications especially to harmonic motion, vibrations and balancing of machines, whirling shafts, and rotating disks. *First semester; two unit-hours.* Professor MAURER.

Elective for students who have had courses 1 and 3 or their equivalent.

8. Materials of Construction. Laboratory research. Work in the following lines will be given as described, and other work may be arranged for in either semester.

a. Iron and Steel.—Comparative study of methods of testing, testing machinery, and specifications. Open to seniors. *First semester; one unit-hour.*

b. Concrete.—Plain: *second semester; one unit-hour.* Reinforced: *first semester; two unit-hours.* Mr. WITHEY. (Plain concrete open to juniors and seniors; reinforced, open to seniors who have had plain.)

c. Brick.—Complete tests of several varieties, including sand-lime brick, and comparison of results Open to students who have had one semester of Mechanics 4. *Throughout the year; one unit-hour.* Mr. MCCULLOUGH.

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TOPOGRAPHIC AND GEODETIC ENGINEERING

ASSOCIATE PROFESSOR SMITH; MR. OWEN, MR. PARKER.

1. Topographic Drawing and Mapping. This work includes work in pen and water color topography. *Throughout the year; 64 hours in drawing room; one unit-hour each semester.*
2. Elementary Surveying. Johnson's *Surveying* and Smith's *Field Manual. Throughout the year; first half of first semester and last half of second semester; one unit-hour.*
3. Elementary Surveying. A continuation of course 2, and includes the field and office work of a variety of practical problems in the use of the engineer's transit and level. Special emphasis is placed on methods of computation and arrangement of data. *First semester; recitations two hours a week; field work first nine weeks, 72 hours; four unit-hours.*
4. Advanced Surveying. A continuation of course 3, and includes a study of the higher instruments of precision, and their use in topographic and hydrographic surveys. *Second semester; recitations two hours a week, first twelve weeks; field work, 56 hours, last eight weeks; three unit-hours.*
5. Elementary Geodesy. Text: Johnson's *Surveying. Second semester; two unit-hours.*
6. Trigonometrical Survey. Field work for illustrating course 5. Each year a portion of the region in the vicinity of Portage, Wisconsin, will be covered by an accurate triangulation, and also by a topographic and hydrographic survey. Survey begins the Monday of Commencement week, and continues for four weeks (240 hours). Associate Professor SMITH, Mr. OWEN, and Mr. PARKER.
7. Advanced Geodesy. Lectures, assigned readings, field work. Wright's *Adjustment of Observations. First semester; two unit-hours.*

   Elective for students who have taken courses 2, 3, 4, and 5, or their equivalents.
8. Short Course in Surveying. Planned to meet the demands of Mechanical Engineering and Electrical Engineering students for a general study of the subject including the

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use of both transit and level. *Repeated each semester; three unit-hours.*

9. Rapid Topography. Adapted for training topographers for the United States Geological Survey. Use of the plane table and aneroid barometer in sketching topography. *Second semester; two unit-hours.*

10. City Surveying. Topographic and Cadastral. Lectures, assigned readings and field work. *Second semester; two unit-hours.*

RAILWAY ENGINEERING

PROFESSOR PENCE, MR. CURTIS, AND MR. VAN ZANDT.

1. Railway Curves. An introductory course in the computation and field location of simple, compound and spiral curves. *Second semester; two unit-hours.*

2a. Railway Location and Construction. The theory of field and office work necessary to survey and construct a new railway line and to improve or reconstruct an old one. *First semester; lectures and computations; two unit-hours.* Professor PENCE.

2b. Practice in Field and Office Work. In connection with course 2a. *Six hours per week, field and office work; three unit-hours.* Mr. CURTIS and Mr. VAN ZANDT.

3. Maintenance of Way. A course in railway maintenance. *Second semester; two unit-hours.* Professor PENCE.

4. Railway Engineering. A brief course in railway location, construction and maintenance. An elective for students in electrical and mining engineering who have previously had practice in surveying. *First semester; two unit-hours.* Mr. VAN ZANDT.

5. Railway Economics. The economics of railway location and improvements; dealing with train resistance, momentum grades and related matters. *Second semester; two unit-hours.* Professor PENCE and Mr. VAN ZANDT.

6. Railway Design. A course in the design of track standards and minor railway structures, with field work in yard resurveys, staking out structures, etc. In connection with course 3. *Second semester; four hours per week drawing and field work.* Mr. CURTIS.

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7. Advanced Railway Design. The design of railway yards and terminals, shops, buildings, etc. *First semester; four hours per week.* Professor PENCE.
8. Signaling and Interlocking. A study of railway signaling and train control. *Second semester (second half); twice a week.* Mr. VAN ZANDT.
10. Masonry Construction. Theory governing the design of masonry structures and foundations. *Second semester; two unit-hours.* Mr. CURTIS.
11. Tunneling and Substructures. The various methods of tunneling, shaft sinking, ordinary and deep foundation work. *Second semester (first half), twice a week.* Professor PENCE.
12. Estimates and Valuations. A study of the methods of valuing railway and public utility properties. *Second semester (second half); twice a week.* Professor PENCE.

For course in railway transportation, see courses under the head of Political Economy. This course is offered as an elective to seniors and graduates in Civil Engineering.

ROADS AND PAVEMENTS

ASSOCIATE PROFESSOR SMITH.

1. Location, Specifications and Construction of Highways and City Pavements. Text, Baker's *Roads and Pavements. First semester; two unit-hours.*

HYDRAULIC AND SANITARY ENGINEERING

PROFESSOR MEAD; ASSISTANT PROFESSOR DAVIS; MR. M'BRIDE, AND MR. SEMRAD.

1. Hydraulics. The elementary principles of the mechanics of fluids and the theory, calibration and use of instruments for hydraulic measurements. Recitations, lectures and laboratory work. *Repeated each semester; three unit-hours.* Mechanics 1 and 2a pre-requisite. Assistant Professor DAVIS, Mr. MCBRIDE and Mr. SEMRAD.
2. Experimental Hydraulics. Practice in the precise measurement of flowing water, the analysis of data and the determination of experimental coefficients and empirical formulas. Laboratory work and assigned readings and prob-

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lems. The special field to be studied may be selected by the student. Course 1 pre-requisite. *Repeated each semester.* Assistant Professor DAVIS.

3. Hydraulic Laboratory. Advanced research and thesis work. Professor MEAD and Assistant Professor DAVIS.

4. Water Power. Stream flow, hydraulic power development and test of motors and appliances. *First semester; three unit-hours.* Professor MEAD and Mr. SEMRAD.

5. Hydraulic Machinery. Water wheels, motors, pumps and other machines. *Second semester; twice a week.* Professor MEAD and Mr. MCBRIDE.

10. Hydrology. Physiography, hydrogeology, and hydrography in relation to water power, water supply and sanitary works. *Second semester; two unit-hours.* Professor MEAD and Mr. MCBRIDE.

11. Water Supply Engineering. *First semester; three unit-hours.* Professor MEAD and Mr. MCBRIDE.

12. Sewerage, Drainage, and Irrigation. *Second semester; twice a week, or three times a week for those who desire special instruction in any of these subjects.* Professor MEAD, Assistant Professor DAVIS and Mr. SEMRAD.

13. Hydraulic Design. Design of various features of hydraulic and sanitary works. *One or both semesters; four hours drawing a week.* Professor MEAD.

14. Rivers and Canals. River and harbor improvement and construction. *Second semester; one unit-hour.* Professor MEAD.

STRUCTURAL ENGINEERING

PROFESSOR TURNEAURE; ASSISTANT PROFESSOR BURNSIDE; MR. KINNE, AND MR. E. E. PARKER.

1. Structural Details. The designing of simple forms of members and of joints in wood and iron, and wooden roof and bridge trusses. *First semester; drawing four hours a week.* Mr. KINNE and Mr. PARKER.

4. Reinforced Concrete, Arches, and Dams. Theory and design of reinforced concrete structures and analysis of arches, dams and similar structures. *First semester; four unit-hours.* Professor TURNEAURE and Mr. PARKER.

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5a. Bridge Stresses. Simple bridge trusses. *Second semester; four unit-hours.* Mr. KINNE and Mr. PARKER.

5b. Bridge Stress. Suspension, swing, cantilever, and arch bridges. *First semester; twice a week.* Mr. KINNE.

6. Bridge Design. Theoretical considerations. *First semester; one unit-hour.* Mr. KINNE.

7. Designs and Estimates. In this course each student makes a complete design of one structure of each class mentioned below, prepares detail drawings and makes an estimate of the quantity of material and cost; complete working drawings are made of at least one structure.

7a. Roof Trusses and Plate Girders. *Second semester;* 108 *hours in drawing room.* Mr. KINNE and Mr. PARKER.

7b. Riveted and Pin-Connected Trusses. *First semester; with course* 6 *makes a four-unit study.* Mr. KINNE and Mr. PARKER.

7c. Swing Bridges. Design of truss, turntable, and operating machinery. *Second semester;* 72 *hours in drawing room.* Mr. KINNE.

Elective for seniors and graduates in Civil Engineering.

8. Advanced Theory and Experimental Work. Higher structures, secondary stresses, and tests on bridges under moving loads. *Second semester; two unit-hours.* Professor TURNEAURE.

Open to seniors and graduates.

9. Structural Design. A short general course in the designing of roofs and buildings designed for students in mechanical and electrical engineering. *Second semester; three times a week.* Mr. KINNE.

11. Building Construction. Elementary course open to all engineering students. *One or both semesters; two hours a week.* Assistant Professor BURNSIDE.

STEAM AND GAS ENGINEERING

PROFESSOR THOMAS; ASSOCIATE PROFESSOR THORKELSON; MR. HUELS, AND MR. SHEALY.

1. Thermodynamics. This course covers those principles of the mechanical theory of heat which are essential in a study of various kinds of heat engines. *First semester,*

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first ten weeks; 50 *hours in class-room.* Pre-requisites, Sophomore Engineering Physics and Mathematics. Required of Junior Mechanicals. Associate Professor THORKELSON.

2. Thermodynamics. The theory of various types of heat engines, such as the hot air engine, gas engine, steam engine and steam turbine, is discussed, together with the principles to be followed in order to secure maximum economy. *First semester; last eight weeks;* 50 *hours in class-room.* Pre-requisite, course 1. Required of Junior Mechanicals. Associate Professor THORKELSON.

4. Steam Engines and Boilers. The general subject of steam engines, steam turbines and boilers of various types is studied together with such subjects as steam piping, heaters, pumps and other boiler auxiliaries. The study is partly taught by lectures. *Second semester;* 80 *hours in class-room.* Pre-requisite, courses 1 and 2. Required of Junior Mechanicals. Associate Professor THORKELSON.

5. Steam and Gas Engine Calculations. A course devoted to the calculation of problems met in determining sizes and the more important details of steam engines, turbines, gas engines, producers, boilers, etc. Problems are assigned and discussed, and solved in the drawing room. *First and second semesters; four hours a week.* Pre-requisite, courses 1, 2, and 4. Required of Senior Mechanicals. Professor THOMAS and Associate Professor THORKELSON.

6. Short Course in Thermodynamics. An abbreviated course in the theory and principles underlying the construction, design, and operation of steam engines, gas engines, and boilers of various types. *First and second semesters; three unit-hours.* Pre-requisite, Sophomore Engineering Physics, and Mathematics. Required of Junior Electricals. Mr. HUELS and Mr. SHEALY.

7. Course in Steam Engineering for Civil Engineers. An informational course covering the more important types of engines and boilers. *First semester; two unit-hours.* Pre-requisite, Sophomore Engineering Physics and Mathematics. Required of Junior Civil Engineers. Mr. HUELS and Mr. SHEALY.

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8. Heating and Ventilation. An elective study open to all students who have completed courses 1 and 2 or course 6. This study covers the principles and theory of modern systems of heating and ventilating buildings of various types and is accompanied by problems involving the design and specifications for such systems. *First semester; three times a week.* Mr. SHEALY.
9. Gas and Gasoline Engines. An elective study open to all students who have completed courses 1 and 2, or course 6. This study covers the theory and design of gas and gasoline engines, gas producers and such details as the carburetor, governor, ignition device, etc. *Second semester;* 18 *hours in class room.* Professor THOMAS.
11. Compressed Air and its Application. An elective study open to students who have completed courses 1 and 2, or course 6 or 7, and devoted to the theory and principles governing the economical production and various applications of compressed air. *Second semester; two unit-hours.* Associate Professor THORKELSON.
12. Steam Turbines. An elective study open to students who have completed courses 1 and 2 or course 6. Lectures and drawing room work on the theory and design of the principal types of steam turbines. *First semester; two unit-hours.* Professor THOMAS.
13. Refrigeration and Refrigerating Machinery. An elective study open to students who have completed courses 1 and 2, or course 6. The principles and methods of producing low temperatures artificially are studied together with the construction, operation, and application of refrigerating machinery. *Second semester; two unit-hours.* Mr. SHEALY.

STEAM AND GAS ENGINEERING LABORATORY

PROFESSOR RICHTER; MR. BAKER, MR. HUELS, MR. SHEALY AND MR. WIED.

1. Calibration of Instruments and the determination of efficiencies of simple machines. *Second semester; four hours a week.* Required of juniors in Mechanical Engineering

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Two hours a week. Required of juniors in Electrical Engineering.

2. Determination of the Efficiencies and Losses occurring in the steam boiler, and steam, gas and gasoline engines, and air compressors. Determination of power plant losses and efficiencies. *First semester; four hours a week.* Required of seniors in Mechanical and in Electrical Engineering.
3. Abridged Courses. Calibration of instruments. Determination of efficiencies of simple machines. Steam engine, gas engine and power plant efficiencies. *Second semester; two hours a week.* Required of juniors in Civil Engineering. *Four hours a week.* Required of juniors in Electro-chemical course.
4. Superheated Steam, Gas and Producer Gas Engines. Efficiencies and construction of refrigeration plants. Fuel and gas analysis. *Second semester; two hours a week.* Required of seniors in Mechanical Engineering.
5. Transmission of Power. Determination of losses in belt and similar transmission. Screw and gear friction, oil testing etc., illustrating problems in the design of machinery. *First semester; two hours a week.* Required of juniors in Mechanical Engineering.
6. Calibration of Instruments. Determination of efficiencies and losses occurring in heat engines and their auxiliaries. Power station losses and efficiencies. The above is followed by work along the line the student wishes to follow. Gas Engineering students will pay particular attention to the prime movers involved in or using a product of gas manufacture. *Second semester; six hours a week. First semester; two hours a week.* Required of juniors and seniors in Chemical Engineering.
7. Determination of the constituents of air in rooms and buildings. This course must be accompanied by course 8 in Steam Engineering. *First semester; two hours a week.*
8. Advanced Laboratory Work. Advanced courses will be offered in any of the different lines of experimental work, to conform with the special line of work the student

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wishes to follow. Stress will be laid on original research and investigation. *Tu., Th., at hours to be arranged.* Open to graduate students and to those who have completed the required courses in the line they wish to follow.

MACHINE DESIGN

PROFESSOR MACK; ASSISTANT PROFESSORS KEOWN, VOSSKUEHLER.

1. Mechanism. The relative motions of machine parts, including belting, toothed gears, cams, chains, rachets and linkages. *Repeated each semester; one lecture, one recitation and four hours drawing a week.* Prerequisite, Mechanical Drawing 1 and 2. Assistant Professor KEOWN.
2. Machine Design for Electrical Engineering. A study of mathematical and empirical methods for the design of machine parts and complete machines, with a parallel drawing course conforming to the requirements of modern drawing practice. This course is a condensation of courses 3 and 4, arranged for the electrical engineering students. Prerequisite, Machine Design 1, Mechanics 1, 2. *Throughout the year. First semester; one recitation and four hours drawing a week and an occasional lecture. Second semester; one recitation and three hours drawing a week.* Assistant Professor VOSSKUEHLER.
3. Machine Design for Mechanical Engineering. A continuation of mechanical drawing and kinematics as applied to the making of shop drawings. Problems in the determination of sizes and proportions involving empirical and elementary mathematical methods. A study of the application of the principles of mechanics to the design of machine elements and complete machines. Prerequisite, Machine Design 1, Mechanics 1 and 2. *Throughout the year; one lecture, one recitation, and eight hours drawing a week.* Professor MACK and Assistant Professor VOSSKUEHLER.
4. Machine Design for Chemical Engineering. A study of and practice in the design of pumping, filtration, sugar, oil, and other machinery used in the chemical engineering industries. Prerequisite, Machine Design 2. *Second semester; one lecture and three hours drawing a week.* Assistant Professor VOSSKUEHLER.

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5. Machine Design. Continuation of course 3. Design of special and automatic machinery, jigs and fixtures. *Two hours a week.* Elective for students who have had course 2 or 3. Professor MACK.
6. Patent Office Drawing. A course giving practice in the preparation of drawings required by the U. S. Patent Office. *Time arranged upon consultation; one unit-hour.* Professor MACK.

   Open to all who have had course 1 in Mechanical Drawing.
7. Special and Automatic Machinery. *Four hours drawing a week.* Assistant Professor KEOWN.

   Students in Civil Engineering electing special work in Machine Design, should have the same prerequisites as noted in course 5.

APPLIED ELECTROMAGNETISM

ASSISTANT PROFESSOR WATSON; MR. BURRER, MR. COOPER, MR. DISQUE, MR. HIGSON, MR. LOEW, MR. PRICE, MR. SANFORD.

1. Electromagnets and Dynamos. A discussion of the simple forms of electromagnets; the development of the laws of magnetization by electric currents; the laws of simple magnetic circuits and the winding of electromagnets; the practical design, construction, management and testing of dynamos. *Throughout the year. First semester; four unit-hours. Second semester; two unit-hours.* Assistant Professor WATSON.
2. Testing Direct-Current Dynamos. Laboratory work with generators, motors, and accessory apparatus. For undergraduates. *Throughout the year.* Mr. PRICE and laboratory instructors.
3. Electrical Machinery and Appliances A short course in the theory, construction, management and testing of direct-current generators, motors and sundry appliances. *First semester; three hours per week.* Mr. LOEW.
4. Design and Construction of Large Direct-Current Dynamos. This course includes the working out of complete designs *First semester; one unit-hour.* Assistant Professor WATSON.
5. Testing Direct-Current Machinery. A short laboratory

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course primarily for mechanical and civil engineers. *Repeated each semester.* Mr. PRICE and laboratory instructors.

6. Elements of Electrical Engineering. A short course dealing with direct current machinery and systems. *Repeated each semester; two unit-hours.* Mr. BURRER.

COMMERCIAL MECHANICAL ENGINEERING

PROFESSOR MACK; ASSOCIATE PROFESSOR THORKELSON; ASSISTANT PROFESSOR VOSSKUEHLER, SUPERINTENDENT STEEN, AND MR. SHEALY.

1. A study of the commercial side of mechanical engineering including; patent practice, and application of patent record research to engineering; the principal factors controlling costs, methods of determining the depreciation of machinery and industrial plants, inventories and valuations of existing properties. A series of lectures is given by Professor GILMAN on corporate organization and cost keeping. *First semester; three unit-hours.*
2. A study of the principles underlying the selection of power units, including load curves, fixed and operating charges, etc., accompanied by lectures on power plant buildings, design and estimates. Each student is required to prepare complete designs and estimates in the drawing room for a small direct current power plant. A course of lectures is also given on shop equipment and layout for manufacturing a given product in a certain quantity. Each student will make a layout of the machinery for a typical plant. These lectures include shop management, methods of remunerating labor and the effects upon the cost of production. *Second semester; two unit-hours.*

ALTERNATING CURRENTS

PROFESSOR BEEBE; ASSISTANT PROFESSOR WATSON; MR. BURRER, MR. COOPER, MR. DISQUE, MR. HIGSON, MR. LOEW, MR. PRICE, MR. SANFORD.

1. An introductory course dealing with the fundamental laws of alternating currents. *Second semester; three unit-hours.* Assistant Professor WATSON.

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2. Testing Alternating Current Machinery and Appliances. The testing and operation in the laboratory of alternating current generators, motors, transformers, meters and other appliances. *Throughout the year; two unit-hours.* Mr. PRICE and laboratory instructors.
3. Alternating Current Machinery. A course dealing with the characteristics and operation of alternating-current generators, motors and transformers. *Throughout the year; three unit-hours.* Prerequisite, course 1. Professor BEEBE.
4. Alternating Current Laboratory work. An advanced course. *First semester; two unit-hours.* Mr. PRICE.
5. Alternating Current Laboratory. A short course, primarily for mechanical engineers. *Second semester; two unit-hours.* Mr. PRICE and laboratory instructors.
6. Advanced Course in Alternating Currents. A course dealing with the properties of alternating-current circuits and machinery including the effects of resonance, protecting the circuits from lightning, etc. *Three hours per week.* Professor BEEBE.
7. Elementary Applied Alternating Currents. A short course in the theory, construction, management, and testing of alternating current machinery and appliances. *Second semester; three unit-hours.* Mr. LOEW.

   Open to those who have completed the equivalent of one semester of Applied Electromagnetism 3.
8. Elements of Electrical Engineering. A short course dealing with alternating current machinery and systems. *Repeated each semester; two unit-hours.* Mr. BURRER.

ELECTRICAL INSTALLATIONS

PROFESSOR BEEBE; ASSISTANT PROFESSORS DICKINSON, SHUSTER; MR. BURRER, MR. LOEW, MR. WICKENDEN.

1. Telephony. Theory, construction and operation of telephone, telegraph and electric signaling devices and systems. *First semester; two hours per week.* Mr. LOEW.
2. Electrical Testing. Laboratory course in general testing of telephones, telegraph and electrical signaling devices, etc. Location of faults and grounds in cables, transformers and dynamos. Calibration of various types of

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electrical measuring instruments by engineering methods. This is a companion course to Electrical Installations 1, but the former is not a prerequisite. *First semester; one hour per week.* Mr. BURRER.

3. High Potential Testing. A course of experimental investigation dealing with insulation material, lightning protection, the characteristics of transmission lines and the phenomena produced in electric circuits by high potentials. *Second semester; two laboratory periods per week.* Lectures and conferences as announced. Mr. WICKENDEN.

Open to a limited number of seniors and graduates.

4. Electric Lighting and Transmission of Power. Theory and practice in the construction and operation of lines. The construction of appliances for the transmission and distribution of electric power. *Second semester; three times a week.* Mr. LOEW.

5. Conference. A seminary course for the presentation and discussion of papers dealing with the various problems of electrical engineering. A cooperative arrangement with the Department of English insures criticism of the work of the student from the standpoint of English composition. The value of the technical matter is passed upon by the instructor of the Electrical department in charge. Once a month a joint meeting is held with the Madison section of the American Institute of Electrical Engineers. *Throughout the year; two hours a week.* Assistant Professor DICKENSON, Mr. DISQUE and Mr. WICKENDEN.

Open to seniors and graduates.

6. Electric Railways. The road-bed, rolling stock, electric circuits and power plants. Location, construction, motor equipment, direct current and alternating current train schedules, power requirements, and operation. *Second semester; three times a week.* Assistant Professor SHUSTER.

7. Industrial Applications of Electricity. Deals with the industrial applications of electricity not specifically treated in other courses, such as applications to mining and machine tool driving. *First and second semesters; two times a week.* Assistant Professor SHUSTER.

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8. Central Stations. Design, management and estimates. Requirements, location, prime movers, generators, switch boards and auxiliaries. *First semester; three times a week in the class room. Second semester; 72 hours in the drawing room.* Assistant Professor SHUSTER.

Open to seniors and graduates.

9. Inspection Tours. An inspection tour to the large industrial centers is made during the Easter recess and is required of juniors. The tours comprise visits to Milwaukee, Chicago, Pittsburg, Niagara Falls, Schenectady, and other manufacturing centers, for the purpose of inspecting manufacturing plants and great engineering works under operation or construction.

10. Illumination and Photometry. A study of the production and measurement of light, the principles of vision, the characteristics of gas and electric illuminants and the design of systems of illumination. Laboratory tests of the efficiency, light distribution and operating characteristics of illuminants. Tests of street and interior illumination. *First semester; two hours per week in the class room, one or two laboratory periods per week as desired.* Mr. WICKENDEN.

APPLIED ELECTROCHEMISTRY AND ELECTROMETALLURGY

PROFESSOR BURGESS; DR. WATTS, AND MR. KOWALKE.

1. Laws, Principles, and Theories Involved in Electrolytic Phenomena, and their application in the electro-deposition of metals for plating, electrotyping and refining, and in electrochemical generation and storage of electrical energy. Class-room and laboratory instruction. Must be preceded by courses in chemistry. *First semester; five unit-hours.* Professor BURGESS, Dr. WATTS, and Mr. KOWALKE.

Required of seniors in Applied Electrochemistry. Open to seniors and graduates.

2. Industrial Applications of Electrochemistry. A study of the various electrochemical and electrothermal products and processes which have become of technical importance, dealing especially with the electric furnace. *Second semester;*

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once a week in class, and two or more times in laboratory. Dr. WATTS, and Mr. KOWALKE.

Required of seniors in Applied Electrochemistry. Open to all students who have completed course 1.

3. Laboratory Work. Lines of experimental investigation assigned by instructors, together with occasional conferences and written dissertations. *Throughout the year; three or five times a week.* Professor BURGESS, Dr. WATTS, and Mr. KOWALKE.

Elective for students who have completed courses 1 and 2 and the course in Theoretical Electrochemistry.

4. Short Course, dealing with principles of electrochemistry and their various industrial applications. *First semester; once a week in class and one or more periods per week in laboratory. Open to juniors and seniors.* Dr. WATTS and Mr. KOWALKE.

6. Batteries, construction testing, and operation of primary and storage cells. Open to all juniors and seniors. *Second semester; one recitation and one laboratory period a week.* Dr. WATTS and Mr. KOWALKE.

CHEMICAL TECHNOLOGY

PROFESSOR BURGESS; ASSISTANT PROFESSOR DICKERMAN; MR. WICKENDEN, AND MR. KOWALKE.

1. Chemical Machinery and Appliances. General operations, such as crushing, grinding, separation by the wet and dry methods, filtration, distillation, evaporation, drying, and refrigeration; various types of apparatus used for carrying on these processes. *Second semester; two unit-hours.* Professor BURGESS.

2. Technical Fuel, Gas, and Oil Analysis. Laboratory instruction in the technical analysis of fuels, illuminating and fuel gases, products of combustion, etc. *First semester; two periods a week.* Assistant Professor DICKERMAN, and Mr. KOWALKE.

3. Manufacture and Distribution of Gas. A lecture course on the chemistry of gas manufacture and the apparatus and problems met with in the manufacture of gas for fuel,

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power, and illuminating purposes. *Second semester; two unit-hours.* Professor BURGESS.

4. Chemical Manufacture. Instruction and laboratory practice in the preparation of chemical products on a scale sufficiently large to involve the use of filtering, evaporating, centrifugal, and other chemical machinery, and to obtain data upon which the design of a plant may be based. The design of a plant for the production of one or more materials, with an analysis of costs is required of each student. *Second semester; five unit-hours.* Assistant Professor DICKERMAN and Mr. KOWALKE.
5. Industrial Chemistry. Class-room work relating to the manufacture of the more important chemical products such as acids, alkalis, cements, fertilizers, glass, paper, etc., the equipment of plants, and problems connected with the same; chemical resistance of materials. *First semester; three unit-hours.* Assistant Professor DICKERMAN.
6. Applied Thermal Chemistry. A study of the more important chemical and metallurgical processes from the standpoint of the heat efficiency of fuels. This course includes practice in the use of various technical pyrometers and calorimeters. *First semester; twice a week in class, one laboratory period optional. Second semester; twice a week in class, one laboratory period optional.* Mr. KOWALKE.
7. Illumination and Photometry. A laboratory course in the measurement of the illuminating power of gas and oils. *Second semester; once a week.* Mr. WICKENDEN.

ENGINEERING CONTRACTS AND SPECIFICATIONS

PROFESSOR PENCE.

1. The law of contracts as applied to engineering work including the preparation of engineering specifications. *Second semester; two unit-hours.*

MINING ENGINEERING

PROFESSOR HOLDEN.

1. Excavation and Quarrying. Earth excavation and dredging, support of excavations and disposal of material, plant

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and methods. Explosives, their composition, manufacture, properties and use. Rock excavation and quarrying, plant and methods. *First semester; three unit-hours.* Prerequisites, Chemistry 2, Physics 1, Topographic Engineering 2. Professor HOLDEN.

2. Tunneling, Boring and Shaft Sinking. Driving, ventilating and supporting railway, submarine and mining tunnels. Boring: Equipment and methods for boring and core drilling; deviation and survey of bore holes. Shaft sinking: in earth, solid rock, quick-sand and heavy ground; hoisting, pumping, timbering and lining shafts. *Second semester; three unit-hours.* Prerequisite, Mining 1. Professor HOLDEN.

3. Prospecting and Mine Development. Mining geology and its relation to methods of exploration; surface prospecting, boring, prospecting shafts and drifts. Development: Location and character of openings, systems of development, proving and blocking out ore, equipment. *October and November; three hours.* Prerequisite, Geology 1, Mining 2. Professor HOLDEN.

4. Exploitation of Mines. Methods of working veins, beds and masses of different dimensions, dips and values; methods of handling material and supporting workings. Hydraulic and dredge mining. Coal mining: Longwall and pillar methods; coal cutting and blasting; maintenance of entries and air-ways; salt and sulphur mining. *December, January, February; three hours.* Prerequisite Mining 3. Professor HOLDEN.

5. Mine Engineering. The design, installation and operation of drainage, ventilation, lighting, haulage, hoisting and signalling systems in mines: Surface plant, power generation and transmission, buildings, roads and water supply. Mine surveying; mine accidents, their causes, control and prevention; rescue of men and recovery of workings; safe-guards and safety devices. Examination, sampling and valuation of mines. Engineers' reports. *Throughout the year; two unit-hours.* Prerequisites, Steam and Gas 3, Mining 4, Chemistry 50. Professor HOLDEN.

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7. Ore dressing and Coal Washing. Hand dressing. Principles and practice of ore dressing; crushing, sizing, jigging, classifying, concentration, log washing, magnetic, electrostatic, oil and flotation processes of separation. Mechanical engineering of concentrating mills. Coal breakers and washers. *Second semester; three unit-hours.* Prerequisite, Mining 5.
8. Gold and Silver Milling and Cyanidation. Stamp-milling; plate, pan, arrastra and patio amalgamation; cyanidation of sands and slimes. Tube-mills. Methods of treatment, filtration, precipitation and recovery of the precious metals. Special mechanical equipment of cyanide plants. *Hours to be arranged.* Prerequisite Mining 7.
11. Mining Thesis. The development and equipment of a mine, including the design and working drawings of the principal structures and machines, with a detailed report.

SHOP WORK

SUPERINTENDENT STEEN; MR. DABNEY, MR. KATELEY, MR. LOTTES. MR. PAYTON, MR. SLADKY, AND MR. WOOD.

1. Bench Work in Wood. *Each semester; one unit-hour.*
2. Wood, Lathe, Pattern, and Foundry Work. *Each semester; one unit-hour.*
3. Bench Work in Iron. Instruction in the use of the chisel, file and scraper. *First semester; one-half unit-hour.*
4. Pipe Fitting, Maintenance of Belting, Babbiting, and Soldering. *First semester; one unit-hour.*
5. Lathe Work in Metals. *First semester; two unit-hours* in Mechanical Engineering course; *one unit-hour* in Electrical Engineering course.
6. Planing and Milling. *Each semester; one unit-hour.*
7. Forge Work. *First semester; one and one-half unit-hours* in Mechanical Engineering course; *one unit-hour* in Electrical Engineering course.
8. Chipping and Filing, Maintenance of Belting, and Soldering *First semester; one-unit-hour.*
9. Tool Making, Grinding, Jigs and Fixtures. *First semester; two unit-hours.*

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10. Turret Lathe Operation. Forms of tools and methods of operation for production of duplicate parts. *Second semester; one unit-hour.*
11. Machine Construction. *Each semester; four unit-hours* in Mechanical Engineering course; *two unit-hours* in Electrical Engineering course.
12. Advanced Foundry Practice. Loam, sweep, and dry sand molding; management of cupola. *Second semester; one unit-hour.*
13. Elective for Civil Engineering Students. Wood work; trusses, trestle work, and concrete molds. Forge practice; forging, welding, and tool dressing. Machine shop; lathe work, drilling, use of hand tools, punching, riveting, and instrument repairs. *Second semester; three unit-hours.*
14. Elective for Chemical Engineering students. (Wood work; scaffolding, machine framing, concrete molds.) Forge practice; forging, welding, brazing, soldering, and tool dressing. Machine shop; lathe work, drilling, use of hand tools, pipe fitting, maintenance of belting and shafting, sheet metal construction, lead and copper working. *Second semester; three unit-hours.*

Required for Mechanical Engineering Course, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12; total, 16 unit-hours.

Required for Electrical Engineering Course, Nos. 1, 2, 5, 6, 7, 8, 11; total, 8 unit-hours.

Note:—Four unit-hours in each of the above lists of required courses must be taken during vacation periods. Opportunity is offered to do this work in the University shops, but credit for same may be obtained for not less than four weeks' work in industrial establishments when a satisfactory equivalent can be obtained.

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THE COLLEGE OF LAW

HARRY S. RICHARDS, Dean, Professor of Law.

History

Plans for the organization of the College of Law were formulated in 1857, but owing to lack of funds the actual organization was not effected until 1868. The instructional staff was composed of members of the Dane County bar and the judges of the supreme court.

The course of study covered but one year, and no requirements as to admission were exacted. In 1874 candidates for admission were required to pass examinations in the ordinary English branches. In 1881 the course of study was extended to two years, and candidates were required to have a fair English education. In 1894 the course was extended to three years. In 1896 the requirements for admission were made the same as in the College of Letters and Science. In 1905 candidates for degrees were required to present additional credits equivalent to the freshman year of the College of Letters and Science. In 1907 the present requirements of credit equivalent to the freshman and sophomore years of the College of Letters and Science became effective. In April, 1907, the regular summer session of the College of Law was established. At the time of its organization the college occupied rooms in the capitol building. It now occupies a building especially erected for it in 1893.

Objects of the Course

The College of Law offers a course of study covering a period of three years. It is designed to teach the fundamental principles of the English and American law in a thorough manner, and to fit the student for the active practice of the profession.

Admission

Students applying to the College of Law may be admitted as are students in other departments by either of two methods:—

First, on certificates from accredited schools or colleges.

Second, on examination at the University.

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Applicants for admission to the College of Law as candidates for a degree must satisfy the general requirements of the University (see Index under Admission), and in addition, must present credits equivalent to the freshman and sophomore years in the College of Letters and Science. The above requirements may be satisfied by work done in any reputable college or university. Graduates of the regular course in the several state normal schools of Wisconsin will be admitted as candidates for a degree.

Applicants for admission who can satisfy the general entrance requirements will be admitted as special students and entitled to all the privileges of the school in the way of instruction. An opportunity is thus afforded to prepare for the bar examinations in this and other states. In exceptional cases, special students may become candidates for the degree. (See Requirements for Graduation.)

The examinations are conducted at the same time and by the same members of the faculty as the examination of candidates for admission to the College of Letters and Science.

In addition to the other entrance requirements, all candidates for admission to the College of Law, whether graduates of accredited high schools or not, are required to take the regular entrance examination in English, required for admission to the College of Letters and Science (see Index under Admission), except,

(a) Students of the university who have already passed such examination.

(b) Graduates of other approved colleges and universities. But the faculty may require any student to take additional work in English, if, in their judgment, it is necessary.

Those intending to apply for examination for admission to the first year class, or for advanced standing, should notify the Registrar of the university before the beginning of the year, and apply for directions, as examinations cannot be taken later.

Examinations for admission to the first year class will be held on June 17–18, and September 28–29, 1909, beginning at 9 o'clock.

Advanced Standing

Candidates for advanced standing who can comply with the general entrance requirements of the college as above set out will be given equivalent credit for satisfactory work done in other law schools in good standing having a three years course,

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upon presenting properly authenticated certificates of such work. The right is reserved to require examinations in all cases where the credits presented are not regarded as equivalent.

Students who have graduated from the College of Letters and Science, and who while students in that college have elected and successfully completed ten hours a week of law study, will be admitted to the second year. To meet the above requirement the student must elect seven hours of work in the subjects of the first year of the College of Law and three hours in law courses offered in the College of Letters and Science. The courses from which elections can be made in both colleges are to be designated by the faculty of the College of Law.

All persons who intend to apply for advanced standing under the above rules should forward or present their credentials to the dean of the college at least one week before the opening of the particular session which the student desires to attend.

The courses designated in 1909–10 in the College of Letters and Science are Political Science 2, 9, 10, 11, 13, 18, 26.

Graduation

The degree of Bachelor of Laws will be conferred upon all candidates of good character and of at least twenty-one years of age, who have complied with the following conditions:

(1) Credit for at least seventy-two unit-hours (a unit-hour is the equivalent of one hour a week for a semester).

(2) Residence of at least three years in a law school of good standing, having a three-year course, one year of which must have been in this school.

(3) Preparation and presentation of a satisfactory thesis of not less than 3,000 words on some legal subject selected with the approval of the faculty. The subject shall be chosen and the work begun thereon, under the supervision of the instructor in charge, not later than December 1st, and completed by April 15th, preceding the Commencement at which the candidate will apply for his degree. Two unit-hours credit is given for thesis.

(4) Students completing the course with distinguished ability and presenting a thesis of unusual merit will be recommended for the degree with honor.

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(5) Unclassified students who have completed seventy-two unit-hours and who have been in residence for three years may, provided they have displayed unusual ability in their work, by special action of the faculty, be recommended for a degree.

Admission to the Bar

The statutes of the state provide that any resident graduate of the Law Department of the University of Wisconsin shall be admitted to the bar of any court upon the presentation of his diploma, and may be admitted to the supreme court when not in session by an order signed by one of the justices thereof and filed with the clerk. (R. S. Wis., sec. 2586.)

Under this statute and a rule of the federal court, it is customary for the graduating class, on motion of a member of the faculty, to be admitted to the supreme court of the state, and to the district and circuit courts of the United States, immediately upon graduation. This entitles them to admission to the bar of any court of record in Wisconsin and all federal courts.

COURSES OF INSTRUCTION

The courses of instruction are arranged to present as far as possible, the fundamental topics of the law during the first year, and the specialized subjects during the second and third years.

FIRST YEAR

COMMON LAW PLEADING. Ames' Cases on Common Law Pleading (first edition). *Three hours a week; second semester.* Professor COOK.

CONTRACTS. Keener's Cases on Contracts. *Four hours a week first semester; two hours a week second semester.* Professor RICHARDS.

CRIMINAL LAW AND PROCEDURE. Beale's Cases. *Two hours a week; both semesters.* Assistant Professor MOORE.

HISTORY OF ENGLISH AND AMERICAN LAW. Cases and assigned readings. *One hour a week; first semester.* Professor COOK.

Introductory to the study of the history of the common law, with particular reference to pleading.

LAW OF PERSONS. Paige's Cases. *One hour a week; both semesters.* Professor JONES.

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PROPERTY I. Gray's Cases on Property, Vols. I, II. (2nd ed.) *Two hours a week; both semesters.* Professor OLIN.

TORTS. Ames' and Smith's Cases on Torts. *Two hours a week; both semesters.* Professor GILMORE.

SECOND YEAR

ADMINISTRATIVE LAW I. Goodnow's Cases on Administrative Law. *Two hours a week; first semester.* Professor COOK.

ADMINISTRATIVE LAW II. Selected cases and Smith's Cases on Municipal Corporations. *Two hours a week; second semester.* Professor COOK.

ADMINISTRATIVE LAW III. Selected cases. *Two hours a week; first semester.* (Omitted in 1908–09.) Professor COOK.

ADMINISTRATIVE LAW IV. Goodnow's Cases on Taxation. *Two hours a week; second semester.* (Omitted in 1908–09.) Professor COOK.

AGENCY. Wambaugh's Cases on Agency. *Three hours a week; first semester.* Professor GILMORE.

BANKRUPTCY. Williston's Cases on Bankruptcy. *Two hours a week; first semester.* Assistant Professor MOORE.

BILLS OF EXCHANGE AND PROMISSORY NOTES. Huffcut's Cases on Negotiable Instruments. *Three hours a week; second semester.* Assistant Professor MOORE.

CODE PLEADING. Hinton's Cases on Code Pleading. *Three hours a week, first semester; one hour a week, second semester.* Professor COOK.

DAMAGES. Beale's Cases on Damages. *Two hours a week; second semester.* Professor RICHARDS.

EQUITY I. Keener's Cases on Equity. Vols. I, II. *Three hours a week; first semester.* Professor SMITH.

EQUITY II. Keener's Cases on Equity. Vols. II, III. *Three hours a week; second semester.* Professor SMITH.

EQUITY PLEADING. Selected cases. *One hour a week; first semester.* Professor COOK.

EVIDENCE I. Jones on Evidence and selected cases. *One hour a week; both semesters.* Professor JONES.

INSURANCE. Wambaugh's Cases on Insurance. *Two hours a week; second semester.* (Omitted in 1908–09.) Professor RICHARDS.

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PROPERTY II. Gray's Cases on Property. Vols. II, III. (2nd ed.) *Two hours a week; both semesters.* Professor OLIN.

PUBLIC SERVICE COMPANIES. McClain's Cases on Carriers, and selected cases. *Three hours a week; second semester.* Professor GILMORE.

QUASI-CONTRACTS, Keener's Cases on Quasi-Contracts. *Two hours a week; first semester.* Professor SMITH.

SALES. Williston's Cases on Sales. *Three hours a week; first semester.* Professor SMITH.

TRUSTS. Ames' Cases on Trusts. (2nd ed.) *Two hours a week; both semesters.* Professor COOK.

THIRD YEAR

ADMIRALTY. Ames' Cases on Admiralty. *Two hours a week; first semester.* (Omitted in 1908–09.) Professor ————.

CODE PRACTICE. Wisconsin Statutes and Decisions. *Two hours a week; both semesters.* Mr. SANBORN.

COMPARATIVE CONSTITUTIONAL AND ADMINISTRATIVE LAW I. Selected cases and assigned readings. *Two hours a week; first semester.* (Omitted in 1908–09.) Professor COOK.

COMPARATIVE CONSTITUTIONAL AND ADMINISTRATIVE LAW II. Selected cases and assigned readings. *Two hours a week; second semester.* Professor COOK.

CONFLICT OF LAWS. Beale's Cases on Conflict of Laws. *Three hours a week; second semester.* Professor SMITH.

CONSTITUTIONAL LAW. McClain's Cases on Constitutional Law, and selected cases. *Two hours a week; both semesters.* Professor GILMORE.

CORPORATIONS. Smith's Cases on Corporations. *Two hours a week; both semesters.* Professor RICHARDS.

EVIDENCE II. Jones on Evidence. *One hour a week; both semesters.* Professor JONES.

MORTGAGES. Kirchwey's Cases on Mortgages. *Two hours a week; second semester.* Professor COOK.

PARTNERSHIP. Gilmore's Cases on Partnership. *Two hours a week; first semester.* Professor GILMORE.

PROPERTY III. Gray's Cases on Property. Vols. V, VI. *Two hours a week; both semesters.* (Omitted in 1908-09.) Professor OLIN.

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SURETYSHIP. Ames' Cases on Suretyship. *Two hours a week; first semester.* Assistant Professor MOORE.

WISCONSIN CORPORATIONS. Statutes and selected cases. *One hour a week; second semester.* Professor RICHARDS.

Required and Elective Courses

Candidates for the degree are required to take all the subjects of the first year, twelve hours of work in the second year, and twelve hours in the third year. The work of the second and third years is elective. Second year students may elect not less than twelve nor more than fourteen hours in courses offered in the second year. Second year students who are graduates of the College of Letters and Science, and who have not completed all the courses of the first year, will be required to include such omitted courses in their list of electives. Third year students may elect not less than twelve nor more than fifteen hours in courses offered in the third year and in courses not already taken by them when second year students. No student is permitted to count more than twelve hours of work in any one semester towards the total hours required for the degree. Elections in all cases are subject to the approval of the dean.

Procedure and Practice Courses

Courses in Procedure and Practice extend throughout the entire three years and comprise Common Law Pleading, four hours, first year; and Code Pleading and Practice, two hours a week during the second and third years. The purpose of the courses is to instruct the student in the principles of pleading and practice at common law and under the codes, by duplicating as far as possible the steps taken by an active practitioner in the preparation and trial of cases at law and in equity throughout the entire field of litigation. The student is required to prepare pleadings in assigned cases, and to carry through the various steps in a cause from its inception to the final judgment. Instruction will also be given in the drawing of all forms of legal papers. Unusual facilities are thus provided to prepare the student for the active practice of the profession.

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Elective Studies

Students of the College of Law will be permitted to pursue studies in other departments of the University, subject to the following regulations:

Students of the first year class of the College of Law may elect studies in the College of Letters and Science and substitute them for studies in the first year of the law course, to an amount not exceeding three hours a week for the year. The studies to be elected are to be designated by the College of Law.

Students in the College of Letters and Science will be permitted to elect, as a part of their undergraduate course, studies in the College of Law for which see Index, under Election.

Resources of the College of Law

The College of Law is maintained from appropriations made for the purpose by the Regents, and from matriculation fees.

By the will of the late Judge Mortimer M. Jackson, funds to the amount of $20 000 were bequeathed to the University to found and maintain a professorship of law.

Law Building

This building was constructed at a cost of $86,000. It is amply provided with lecture and library rooms, and is equipped with the most approved systems of lighting, heating, and ventilation.

Library

The library of the College of Law contains 16,000 bound volumes, comprising the official reports of the various states and territories and of the United States; a complete set of English, Irish, and Canadian reports; the reporter system; the various series of selected cases, as American Decisions, American Reports, American State Reports, Lawyers Reports Annotated; duplicates of the more important reports; complete sets of the leading law periodicals; a large collection of text books, statutes, digests, etc.

Students are allowed free access to the books. The library is open each week day from 8 A. M. to 10 P. M.

For information concerning the other libraries accessible to students, see Index under Library.

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Advantage of Location

Unusual facilities for observing the practice of the various courts are offered the students of the College of Law, from the fact that the supreme court of the state is in session during most of the academic year, and the students have opportunity to listen to arguments by some of the ablest lawyers of the country.

Two terms of the United States district and circuit courts are held here annually, and important cases, both in law and equity, are tried, illustrating the procedure in the federal courts.

The circuit court of Dane county holds three terms annually, giving the students opportunity to observe the details of the practice under the code system.

The municipal court of Dane county sits daily for the trial of criminal causes.

The legislature of the state holds biennial sessions.

The University

The University of Wisconsin has a corps of instructors selected from the best scholars in their respective specialities. On obtaining the proper certificate from the dean, students of the College of Law may pursue studies for which they are prepared in other departments of the University, without additional fees, in so far as such studies do not interfere with their work in the College of Law.

Societies

The Forum-Columbia is an incorporated literary society composed entirely of law students. Weekly meetings for debates and other literary exercises are held.

Fees and Expenses

All fees are payable in advance at the office of the Secretary of the Regents. (See Index under Tuition and Fees.) Admission to membership in the classes is not permitted until the fees are paid. No deductions are made for absences, nor for failure to begin at the opening of the year, nor is extension of time allowed for payment of fees. Fees must in all cases be paid in advance.

Receipts showing the payment of tuition must be filed with the dean within ten days after entry.

It is most desirable that each student should provide himself

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with his own text-books and books of selected cases which are designated in the program of instruction. These books may be obtained from the University Co-operative Society at a considerable discount from the quoted prices. The books required for the first year can be obtained for about $35 and for the second and third years for about $65.

The expenses of living are moderate. (See Index under Expenses.)

Students desiring information in regard to boarding places, or general information as to expenses, should address their inquiries to the Secretary of the Regents.

A careful perusal of this general statement, it is believed, will supply all needed information; but should further inquiries as to admission, examination, etc., be necessary, they should be addressed to the Dean of the College of Law, Madison, Wis.

SUMMER SESSION

The summer session established in 1907 is a regular session of the college. The courses offered are not review courses or abbreviations of the subjects presented during the regular session. The lectures are given by regular members of the faculty assisted by experienced teachers from other law schools. Full credit toward the degree in law is given for all work successfully completed. An opportunity is thus afforded to those who for any reason are unable to attend the regular session to obtain thorough and systematic legal instruction. By taking advantage of the summer sessions regular students of the college can materially shorten the calendar period of residence required for the degree.

Time of Opening

The session for 1909 begins June 26th and continues until September 3d.

Courses of Instruction

FIRST YEAR

CONTRACTS. Keener's Cases on Contracts. *Eight hours a week; ten weeks.* Professor SMITH.

TORTS. Ames' and Smith's Cases on Torts. *Four hours a week; ten weeks.* Professor GILMORE.

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SECOND AND THIRD YEARS

AGENCY. Wambaugh's Cases on Agency. *Four hours a week; ten weeks.* Professor GILMORE.

CORPORATIONS. Smith's Cases on Corporations. *Eight hours a week; first five weeks.* Professor RICHARDS.

INSURANCE. Wambaugh's Cases on Insurance. *Eight hours a week; second five weeks.* Professor WAMBAUGH.

SURETYSHIP. Ames' Cases on Suretyship. *Four hours a week; ten weeks.* Assistant Professor MOORE.

TRUSTS. Ames' Cases on Trusts, 2nd edition. *Four hours a week; ten weeks.* Assistant Professor MOORE.

The amount of work offered for the session of 1909 has been increased from twenty-four hours to thirty-two hours per week.

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THE COLLEGE OF AGRICULTURE

H. L. RUSSELL, Dean.

GENERAL INFORMATION

The College of Agriculture has separate buildings, equipment and corps of instructors and investigators for the teaching of the distinctly agricultural subjects. This college, however, is intimately associated with the University as a whole and instruction in the general sciences, languages and mathematics is given in the other colleges. Agricultural students have all the advantages incident to a great university such as assoc ation with students in other colleges, instruction and counsel from the various corps of professors, and the advantages of general libraries, laboratories, and societies. All of the facilities of the college, including laboratories, green-houses, barns, and other equipment are available for instruction and research purposes to both regular and advanced students in agriculture.

Buildings

The buildings of the College of Agriculture are located at the west end of Observatory Hill. Six modern structures provide accommodations for the various departments for agricultural research and instruction. In Agricultural Hall, a four-story building, 200 by 64 feet, are located the executive offices of the College and Experiment Station, Farmers' Institutes, and the offices and laboratories of the Agricultural Chemistry, Animal Husbandry and Agricultural Bacteriology departments. In the rear of the main structure is an octagonal wing, 66 feet in diameter, two stories in height. The first story is occupied by the agricultural library with a large reading room. In the upper stories are located an auditorium with gallery having a total seating capacity of 750.

Hiram Smith Hall, devoted to dairy instruction and research,

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is a three-story building, 100 by 48 feet in extent. Here are located the offices of the Dairy department, lecture rooms, laboratories, rooms for cream separation and cheese making, churning and butter working, pasteurization, refrigeration, etc. In an annex at the rear there are rooms for making foreign cheese, cheese pressing, curing, etc. A modern ammonia plant supplies both buildings with refrigeration. In the creamery, operated by the Dairy department, over 4,000,000 pounds of milk, from more than 100 farms, is annually made into pasteurized milk and cream, print and package butter and several varieties of cheese and sold in the leading dairy markets. Just north of the Hiram Smith Hall stands the heating plant of the College of Agriculture, which includes laboratories for instruction with dairy and creamery machinery.

The Horticulture-Soils building is jointly devoted to the offices, laboratories and class rooms of the Horticultural and Soils departments. The main structure has three stories with extensive modern green-houses in the rear, back of which is a potting house and general laboratory over a large root cellar. The grounds of the Horticultural department include about 12 acres planted with fruit trees, shrubs and perennial plants. Extensive experimental plantations are conducted on these grounds. The Soils department controls 12 acres of the University farm which area is devoted to irrigation, soil, drainage and fertilizer experiments.

The Agronomy building is a modern fire-proof structure of reinforced concrete and brick, 98 by 48 feet. On the first floor are storage rooms for seed grains, a grain curing and shipping room, and a seed grain cleaning room, fully equipped with special machinery for this purpose. On the second floor are the offices of the Agronomy department, a grain and forage crops laboratory, seed testing laboratory, museum and lecture rooms. The third floor is one large grain judging room with sky-lights, which will accommodate several hundred students at a time.

The Agricultural Engineering building is a new reinforced concrete and brick structure, 150 feet long and 50 feet deep with three stories. On the first floor is an extensive power laboratory, fully equipped with modern gasoline and steam engines, electric dynamos and motors, traction engines, etc. A

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large especially designed concrete laboratory is also found on this floor. On the second floor are the offices of the department, lecture room, research laboratory and a machinery laboratory devoted to large farm machines. On the top floor are drawing rooms, a large lecture room and an extensive laboratory for smaller farm tools and implements.

West of the main group of agricultural buildings lies the University farm. The group of farm buildings includes four large barns for horses, cattle, sheep and swine with two large stock judging rooms adapted to instructional uses. Several out buildings including storage sheds for farm machines, silos, individual hog houses, tobacco curing shed are also to be found.

The live stock pavilion is the newest of the college structures having been erected during the past winter at a cost of $75,000. It includes a large amphitheatre with a seating capacity of over 2,000 providing facilities for live stock judging, demonstrations and general live stock instruction work. It will also serve as a meeting place for live stock sales, conventions and other large gatherings such as the Farmers' Course. In the basement are quarters for some of the farm stock and in the front wings are several offices for the Animal Husbandry department. The building is constructed of reinforced concrete and brick with a red tile roof and is fire-proof throughout.

Farms

The Agricultural College domain comprises two farms, one of which forms a part of the University campus, and embraces about 150 acres of tillable land. Two miles distant is another farm of 220 acres, to which has been added by lease 70 acres. Both tracts are devoted to instruction and research, and experiments with farm crops, fertilizers, tillage, drainage, etc., are always in progress. No attempt is made to operate a "model farm," but rather to conduct all operations in such manner as to add new knowledge to the science of agriculture.

Live Stock

Choice specimens of the various classes and breeds of farm animals, valued at nearly $25,000 are maintained in the University herds, stud and flock. Dairy cattle of the Ayrshire, Brown Swiss, Guernsey, Holstein, and Jersey breeds for which

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Wisconsin is preeminently noted are given special attention. Representative beef animals of the Aberdeen Angus, Hereford, Red Poll, and Shorthorn breeds are maintained. The swine herd is composed of Berkshires, Chester Whites, Duroc Jerseys, Large Yorkshires, Poland Chinas, and Tamworths. Cheviot, Dorset, Hampshire, Shropshire, and Southdown breeds of sheep are represented in the University flock. The horses are principally of the draft type and include several brood mares of the Clydesdale and Percheron breeds. All animals are used for instructional purposes and in many instances for investigational work directed by the Experiment Station.

Library

The Agricultural College library embraces about 10,000 bound volumes and many pamphlets, all distinctly agricultural in character. It is especially strong in its files of scientific agricultural journals, both American and foreign, and herd, stud, and flock books of pure-bred animals. A trained librarian is in attendance to assist students. This library, in combination with the general University library and the State Historical library, gives unusual service to the user of books.

Organizations

Long Course, Short Course, and Dairy students maintain three literary societies which meet weekly. These organizations are for drill in parliamentary practice, training in declamation, debate, and essay writing, as well as for the discussion of scientific and practical questions along agricultural lines. The Hoard Press Club is conducted by those students interested in agricultural journalism. Several other clubs are maintained by students interested in particular lines.

Students of the College of Agriculture, former and present, engaged in farming in Wisconsin, maintain an Experiment Association, with a paid membership of about 1,400, for the purpose of co-operating with the Experiment Station in advancing the agriculture of the commonwealth. Practical experiments, planned by Station officials and a committee of the association, are carried out on the farms of the members. Especial attention is given to testing promising new varieties of farm grains, and plants secured through the Experiment Station and the United

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States Department of Agriculture, and to multiplying and disseminating the desirable varieties. By means of this organization, the members of which are scattered all over the State, the college is in close touch with the great body of Wisconsin farmers. The State appropriates $1,000 annually to the work, and prints 5,000 copies each year of the annual report of the association.

Fees and Expenses

For tuition and fees, see Index.

The expenses of resident students in the graduate and long courses are practically the same as for those pursuing other University courses.

The expenses of resident Short Course and Dairy students will vary from $75 to $90 for the term for room, board, washing, and necessary books.

Plan of Agricultural Education

The system of agricultural education followed at the College of Agriculture has three aims:—

First to develop agricultural science through investigation and experiment, and to disseminate the same through bulletins and reports.

Second, to give instruction in agriculture at the University.

Third, to disseminate agricultural knowledge among the farmers of the State by means of institutes, publications, and extension work.

Courses of Instruction

Systematic courses in agriculture have been arranged to meet the wants of students having different purposes in view.

THE GRADUATE COURSE offers to advanced students opportunities for professional training and original investigation, made possible through an active Experiment Station, associated with numerous scientific laboratories. The special lines of study will be left largely to the selection of the student, subject to the approval of the agricultural faculty. It will be practical for such students to participate in experiments in progress, and after suitable experience, to conduct independent investigations. When contributions of knowledge of permanent value are made they will be published through the bulletins of the Experiment Station under the name of the contributor.

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THE LONG COURSE offers scientific training in agricultural chemistry, soils, horticulture, animal husbandry, dairying, agricultural bacteriology, agronomy, and agricultural engineering. Besides the strictly professional branches, it embraces general training in chemistry, physics, biology, bacteriology, and other branches which have an application in agriculture. The field is so broad, however, that it is impossible for the student in four years to pursue all the courses offered in addition to acquiring the necessary fundamental studies, and hence a large liberty of selection is allowed.

THE MIDDLE COURSE. This course of two full years' instruction embraces essentially the work of the first two years of the Long Course, with the exception of foreign language and mathematics. The considerable amount of work in the basal sciences is designed to lay a foundation for the distinctively agricultural work.

THE SHORT COURSE for two years of fourteen weeks each is provided for those who can devote only a limited time to study, and who wish to return at once to the active operations of the farm, and therefore desire the greatest amount of directly useful knowledge that can be acquired in the brief time allowed.

THE DAIRY COURSE of twelve weeks is designed for those who intend to operate creameries and cheese factories.

THE FARMERS' COURSE, covering the brief period of two weeks in winter, is designed for busy farmers, and follows only lines of intensely practical instruction and conference.

Terms of Admission

GRADUATE COURSES IN AGRICULTURE.—Graduates of this University and of other colleges and universities in good standing are admitted to this course without examination.

LONG COURSE IN AGRICULTURE.—The requirements for admission to this course are given under Admission to University. (See Index.)

ADULT SPECIAL STUDENTS IN AGRICULTURE.—For terms of admission for adult special students, see Index under Admission.

THE MIDDLE COURSE IN AGRICULTURE. Requirements for admission are same as for Long Course.

SHORT COURSE IN AGRICULTURE.—Students in this course must be at least sixteen years of age and have a good common school

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education. No entrance examinations are required, but those who come poorly prepared cannot expect to receive the full benefits of the course.

DAIRY COURSES.—The requirements for admission to the Winter Dairy Course are the same as for the Short Course excepting that the candidates must have had not less than six months experience in a creamery or cheese factory before entering the course. For admission to the Summer and Special Courses no previous experience is required.

FARMERS' AND WOMEN'S COURSES.—No examinations are required for admission to these courses, but the candidate must be at least twenty-five years of age to be admitted to the Farmers' Course.

Degrees

The degree of Bachelor of Science, Agricultural Course, is conferred upon students who successfully complete the Long Course in agriculture. The degree of Master of Science is conferred upon agricultural graduates who complete one year of advanced study at the University and present an acceptable thesis on a topic approved by the College Faculty.

Certificates

Students completing in a satisfactory manner the Middle, Short, or Dairy course, will be granted appropriate certificates.

OUTLINE OF LONG COURSE IN AGRICULTURE

Note.—In calculating the hours per week for the various studies, two hours of laboratory, field, or barn practice count as one hour of class room work, which is the unit in this outline. Required subjects outside the College of Agriculture will be found catalogued under the College of Letters and Science. (Marked L. & S.)

Freshman Year

FIRST SEMESTER	Hours per Week
English 1 (L. & S.)	3
German 2S, (L & S.)	4
Chemistry 1 (L & S.)	5
Agronomy 1	2½
Animal Husbandry 1	2½
Military Drill	2
Gymnastics	2

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SECOND SEMESTER	Hours per Week
English 1 (L. & S.)	3
German 2S (L. & S.)	4
Chemistry 1 (L. & S.)	5
Agricultural Engineering 1	2½
Dairy Husbandry 1	2½
Military Drill	2
Gymnastics	2

Sophomore Year

FIRST SEMESTER

Bacteriology 1 (L. & S.)	3
Chemistry 11a (L. & S.)	4
Biology 1 (L. & S.)	5
Horticulture 1	2½
Animal Husbandry 2	2½
Military Drill	2
Gymnastics	2

SECOND SEMESTER

Agricultural Bacteriology 20	3
Agricultural Chemistry 1 and 2	5
Soils 1	5
Mathematics 201 (Engineering)	3
Military Drill	2
Gymnastics	2

Junior Year

FIRST SEMESTER

Physics 1 (L. & S.)	5
Economics 1 (L. & S.)	3
Botany 20 (L. & S.)	2
Electives (3 required in the College of Agriculture)	6

SECOND SEMESTER

Physics 1 (L. & S.)	5
Botany 6 (L. & S.)	4
Agricultural Economics 26	2
Electives (3 required in the College of Agriculture)	7

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Senior Year

FIRST SEMESTER	Hours per Week
Major, including Thesis	5
Minor, assigned	5
Electives (3 required in the College of Agriculture)	6

SECOND SEMESTER

Major, including Thesis	5
Minor, assigned	5
Electives (3 required in the College of Agriculture)	6

The thesis must represent some phase of the student's work in his major study, the credits for the thesis being four unit-hours. The professor in whose department the major is taken, will select a minor. The assigned minor may be taken outside the College of Agriculture. The total requirements for graduation are 133 unit-hours, in addition to military drill and gymnastics. Before graduation, the student must also have had at least six months' practical farm experience. Sixteen to eighteen unit-hours exclusive of drill and gymnastics may be elected each semester, with the privilege of increasing the electives to twenty hours, provided the student has received a standing of 85 per cent. in all studies for the preceding semester. This rule also applies to the Middle Course students.

OUTLINE OF MIDDLE COURSE IN AGRICULTURE

Freshman Year

FIRST SEMESTER

English 1 (L. & S.)	3
Chemistry 1 (L. & S.)	5
Agronomy 1	2½
Animal Husbandry 1	2½
Military Drill	2
Gymnastics	2
Electives in College of Agriculture	3

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SECOND SEMESTER	Hours per Week
English 1 (L. & S.)	3
Chemistry 1 (L. & S.)	5
Agricultural Engineering 1	2½
Dairy Husbandry 1	2½
Military Drill	2
Gymnastics	—
Electives in College of Agriculture	3

Sophomore Year

FIRST SEMESTER

Biology 1 (L. & S.)	5
Bacteriology 1 (L. & S.)	3
Horticulture 1	2½
Animal Husbandry 2	2½
Military Drill	2
Gymnastics	2
Electives in College of Agriculture	3

SECOND SEMESTER

Agricultural Chemistry 1	2
Agricultural Bacteriology 20	3
Soils 1	3
Soils 2	3
Military Drill	2
Gymnastics	2
Electives (3 required in College of Agriculture)	5

Students taking the Middle Course and desiring to transfer to the Long Course, must be prepared to spend more than the usual four years, in order to complete the requirements.

Students who have completed the work prescribed in the above outline, and who have had at least six months' practical farm experience, will be awarded a certificate.

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DEPARTMENTS OF INSTRUCTION

THE LONG AND MIDDLE COURSES IN AGRICULTURE

AGRICULTURAL CHEMISTRY

PROFESSORS BABCOCK, HART, WOLL; ASSISTANT PROFESSOR M'COLLUM; MR. STEENBOCK, AND MR. TOTTINGHAM.

The courses offered in this department are intended to give a broad view of farm chemistry, useful to the general agricultural student, and to develop men fitted for instructional or experimental work in the various fields of chemical activity applied to agriculture. Courses 1 and 2 are general and are open to students who have completed General Chemistry 1, and have had at least one semester's work in qualitative and quantitative analysis. These courses must precede all other courses in the department. Courses 3 to 5 are for undergraduate students desiring a more detailed knowledge of the special subjects treated and are preliminary to greater specialization. These courses should be preceded or accompanied by work in Physics and Biological Science. Course 5 should be preceded or accompanied by a course in Organic Chemistry. Physiology is a desired prerequisite. Course 4 is a prerequisite to thesis work in Dairy Chemistry and courses 3 and 5 should precede the preparation of a thesis on topics relating to Plant and Animal Chemistry. A general course in Microscopic Technique is a prerequisite to course 21. All other advanced courses in this department are open to undergraduates and graduates who have had the necessary preliminary training.

Primarily for Undergraduates

1. Agricultural Chemistry. A general discussion of chemistry applied to the farm, including the chemistry of plants and animals and the processes involved in their growth. *Second semester; two lectures a week; two unit-hours.* Professor HART.
2. Agricultural Analysis. A course in analytical chemistry applied to agricultural materials, including quantitative

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analysis of fertilizers, manures, soils, feeding stuffs, dairy products, insecticides. *Second semester; laboratory work, two three-hour periods; three unit-hours.* Professor HART, Mr. TOTTINGHAM, and Mr. STEENBOCK.

3. Plant Chemistry. Designed for students desiring a fuller considerat on of the growth and composition of our principal farm crops. Select methods in the analysis of plant materials as well as the processes of growth will be studied. *First semester; lecture and laboratory work; two lectures a week; laboratory two three-hour periods; two or five unit-hours.* Professor HART and Mr. TOTTINGHAM.

4. Dairy Chemistry. Embraces the study of the chemistry of milk and its products, including the detection and quantitative estimation of adulterants. *First semester; lectures and laboratory work; one lecture a week; laboratory work by arrangement; three or five unit-hours.* Professor HART and Mr. TOTTINGHAM.

5. Animal Chemistry. A discussion of the chemistry of feeding stuffs, the processes of digestion, the use of nutrients and the metabolic changes involved in the nutrition of animals. *First semester; lectures and laboratory work; two lectures a week; laboratory work by arrangement; two or five unit-hours.* Assistant Professor MCCOLLUM and Mr. STEENBOCK.

19. Thesis Work in Agricultural Chemistry. The thesis may be taken in Plant or Animal Chemistry or in Dairy Chemistry. *Throughout the year; two unit-hours.* Professors HART, WOLL and Assistant Professor MCCOLLUM.

For Undergraduates and Graduates

20. Advanced Bio-Chemical Analysis. Examination of plant and animal products, including quantitative work on the proteids, carbohydrates and fats, and such enzymic processes as are involved in the nutrition of plants and animals *Either semester; conferences, assigned reading, and laboratory work by arrangement; five unit-hours.* Professors BABCOCK, HART and Assistant Professor MCCOLLUM.

21. Detection of Adulteration of Concentrated Feeding Stuffs.

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Includes chemical and microscopical examinations. *Second semester; laboratory work; two unit-hours.* Professor WOLL.

22. Sugar Beet Analysis. Course intended for chemists in sugar factories. *First semester; laboratory work; two unit-hours.* Professor WOLL.

Primarily for Graduates

30. Plant Nutrition. A study of the influence of various fertilizers upon the development and composition of plants, to include field and pot experiments. *Throughout the year; conferences, assigned reading, and laboratory work by arrangement; five periods a week.* Professors BABCOCK, HART; and Mr. TOTTINGHAM.

31. Animal Nutrition. Composition and digestibility of foods and their influence upon growth, production of milk, etc. *Throughout the year; conferences, assigned reading, with laboratory and barn work by arrangement; five periods a week.* Professors HART, WOLL and Assistant Professor MCCOLLUM.

32. Advanced Dairy Chemistry. The approximate analysis of milk and its products, and a study of the changes which occur in the manufacture of dairy products. *Throughout the year; conferences and laboratory work by arrangement; five periods a week.* Professors BABCOCK and HART.

33. Seminary in Agricultural Chemistry. Original articles of importance will be studied in detail, with a view to broaden and deepen the understanding and to act as a stimulus to further research. *Throughout the year; once every two weeks.* Professors BABCOCK, HART, WOLL and Assistant Professor MCCOLLUM.

SOILS

PROFESSOR WHITSON; ASSISTANT PROFESSOR STODDART; AND MR. JONES.

Courses 1, 2, and 21 are general in character and are adapted to the needs of all students of Agriculture. In addition to these courses, courses 3, 4, and 20 are required of students taking their major in soils, and form a basis for the more advanced courses designed to prepare students for instructional or investi-

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gational work in Agronomy, Soil Fertility or Land Drainage. Advanced students specializing in this subject are advised to elect courses in Chemistry, Vegetable Physiology, Agronomy, Geology or Hydraulics, as required by their special needs, during their senior and graduate years.

Primarily for Undergraduates

1. Principles of Soil Physics and Fertility. An introductory course on the origin, composition, tilth and fertility of soils. *Second semester; three lectures and two laboratory periods weekly; five unit-hours.* Professor WHITSON; Assistant Professor STODDART and Mr. JONES.
2. Land Drainage. The principles of land drainage and the surveying operations pertaining thereto. Field work in leveling, mapping, and chaining for drainage systems and practical work in tile laying. *Second semester; three lectures a week for the first nine weeks and field work six hours per week for the second nine weeks; three unit-hours.* Mr. JONES.
3. Soil Analysis. A laboratory course on the methods of chemical analysis adapted to the study of soil fertility. *First semester; three, four or five unit-hours.* Assistant Professor STODDART.
4. Soil Physics. Laboratory work on mechanical analysis and temperature of soil and the movement of soil moisture. During the last half of the semester a portion of the study is carried on in the field. *Second semester; three or five unit-hours.* Mr. JONES.

19. Thesis work. *Throughout the year; two unit-hours.* Professor WHITSON; Assistant Professor STODDART; and Mr. JONES.

For Undergraduates and Graduates

20. Soil Management. An advanced study of the adaptation of systems of farming to soil types; the management of sand, marsh and heavy clay soils; the rotation of crops; use of fertilizers, and of the influence of various systems of farming on the maintenance of fertility. *First semester; two lectures per week; two unit-hours.* Professor WHITSON.

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21. Soil Chemistry. A lecture course on the chemical changes involved in soil fertility. This course must be preceded or accompanied by at least three unit-hours of course 3. *First semester; twice weekly; two unit-hours.* Assistant Professor STODDART.

22. Soil Physics. Lectures on the physical properties of soil, including temperature, movements of moisture, and the interpretation of the mechanical analysis. Methods of cultivation are formulated, based upon the principles studied. At least three unit-hours of course 4 must precede or accompany this course. *Second semester of alternate years; two unit-hours.* Mr. JONES.

23. Drainage Design. Advanced work in making field observations and designing drainage systems including a detailed study of those located in the vicinity of Madison, or elsewhere, of convenient access. Students preferring work along irrigation lines will be given work in water measurements, ditch capacities, and devices for the distribution of water. Conferences and field work. *First semester; hours and credit to be arranged.* Mr. JONES.

24. Plant Nutrition. The course includes the study of the relations of the plant and soil, such as the influence of acidity and alkalinity, the adaptation of root systems to soil texture, the effect of root excretions on availability of nutrient material, and the use of native vegetation as an indication of the fertility of virgin soils. This course alternates with course 25. (Given in 1909.) *Second semester; lectures and laboratory work; two unit-hours.* Professor WHITSON.

25. Agricultural Climatology. A brief introduction to general meteorology followed by the study in detail of the relation of climate to soil fertility and to crops. To alternate with course 24. (Given in 1910.) *Second semester; lectures and laboratory work; two unit-hours.* Professor WHITSON.

Primarily for Graduates

30. Origin, Classification and Mapping of Soils. A study of the processes of soil formation and of the classification and mapping of soils. *Second semester; lectures and field*

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work; two unit-hours. Professor WHITSON, and Assistant Professor STODDART.

31. Research Work. Graduate students with sufficient preparation will be assigned special problems for study. Professor WHITSON; Assistant Professor STODDART; and Mr. JONES.

ANIMAL HUSBANDRY

EMERITUS PROFESSOR HENRY

PROFESSORS ALEXANDER, HUMPHREY; ASSOCIATE PROFESSOR OTIS; ASSISTANT PROFESSOR FULLER; MR. KLEINHEINZ, AND ASSISTANTS.

The courses outlined in this department are suited to the needs of students who intend to become stockmen or instructors and investigators in Animal Husbandry. Courses 1 and 2 are required of all students in Agriculture. Course 1 is prerequisite to course 23. Course 21 is prerequisite to course 25; course 22 is prerequisite to course 26; courses 24 and 26 are prerequisites to course 30.

Primarily for Undergraduates

1. Elementary Live Stock Judging. A study of the points and characteristics of the various breeds of cattle, horses, sheep and swine. *First semester; lectures and laboratory work, two and one-half unit-hours.* Professors ALEXANDER and HUMPHREY, Assistant Professor FULLER, Mr. KLEINHEINZ, and assistants.
2. Live Stock Practice. The application of approved methods in managing and treating farm animals and the recognition and first aid treatment of their more common ailments. *First semester; lectures and laboratory work, two and one-half unit-hours.* Professors ALEXANDER and HUMPHREY, Assistant Professor FULLER, Mr. KLEINHEINZ, and assistants.

19. Thesis work. *Both semesters; two unit-hours.* Professors ALEXANDER and HUMPHREY, Associate Professor OTIS, and Assistant Professor FULLER.

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For Undergraduates and Graduates

20. Breeds of Live Stock. A study of the origin, development and characteristics of the various breeds of live stock. *First semester; lectures with demonstrations; three periods a week; three unit-hours.* Professors ALEXANDER and HUMPHREY, Assistant Professor FULLER, Mr. KLEINHEINZ, and assistants.

21. Elements of Veterinary Science. A lecture and text book course on the rudiments of histology, anatomy, and physiology, with practical applications to the selection, judging and care of animals in health and disease. *Second semester; two lectures a week; two unit-hours.* Professor ALEXANDER.

22. Animal Nutrition. A study of the laws of animal nutrition, the composition of feeding stuffs and the standard rations for the nourishment of farm animals. *First semester; lectures and recitations three times a week; three unit-hours.* Associate Professor OTIS.

23. Advanced Live Stock Judging. Practical applications of the principles and standards governing the judging of the various classes and breeds of live stock. *First semester; four periods a week; four unit-hours.* Professors ALEXANDER and HUMPHREY, Assistant Professor FULLER, Mr. KLEINHEINZ, and assistants.

24. Science and Art of Breeding. A study of the laws, principles and approved methods relating to the breeding of live stock. *Second semester; three lectures a week; three unit-hours.* Professor HUMPHREY.

25. Veterinary Science. A lecture and text book course on hygiene, and diseases of animals, with illustrations and practical demonstrations. *Second semester; two lectures a week; two unit-hours.* Professor ALEXANDER.

26. Live Stock Feeding. The rational feeding of farm animals and a study of the results of nutrition researches at experiment stations of America and Europe. *Second semester; three lectures a week; three unit-hours.* Associate Professor OTIS.

27. Live Stock History. A study of leading individuals and families of live stock including records and pedigrees. *Sec-*

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ond semester; one lecture, one recitation and assigned work; three unit-hours. Assistant Professor FULLER.

Primarily for Graduates

30. Live Stock Problems. A study of problems relating to Animal Husbandry. *Both semesters; assigned reading or research work; conferences weekly; five unit-hours.* Professors ALEXANDER and HUMPHREY, Associate Professor OTIS, Assistant Professor FULLER, and Mr. KLEINHEINZ.

DAIRY HUSBANDRY

PROFESSOR FARRINGTON; ASSISTANT PROFESSOR SAMMIS; MR. BENKENDORF AND ASSISTANTS.

This department offers instruction in the theory and art of manufacturing dairy products.

Course 1 is designed to give instruction in the manufacture of butter from a farm dairyman's standpoint.

Courses 1, 2, 3 and 6 constitute what may be termed a creamery course, fitting persons to become operators, inspectors, or managers of large creameries, etc.

Courses 1, 2, 4 and 6, similarly constitute a cheddar cheese course, fitting men for the operation or management of cheddar cheese plants.

Course 1 is a prerequisite to all courses but 6; course 2 to 20; course 3 to 21; course 4 to 22.

Primarily for Undergraduates

1. General Farm Dairying. An elementary study of milk, methods employed for testing for fat and acidity, use of the lactometer, and curd test. Instruction in the use of hand separators, and in the principles involved in the ripening and churning of cream under farm conditions. *First half of second semester; two lectures and three laboratory periods for nine weeks; hours to be arranged; two and one-half unit-hours.* Professor FARRINGTON and Mr. BENKENDORF.
2. Milk Inspection. A supplementary course including advanced work with the various methods of determining fat, acidity, etc., of dairy products and the detection of physi-

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cal adulterations. A study of the various methods of cream separation, and conditions influencing such operations. *First semester; one lecture and two laboratory periods per week; hours to be arranged; three unit-hours.* Professor FARRINGTON and Mr. BENKENDORF.

3. Creamery Butter Making. A course in the theory and practice of butter manufacture under commercial conditions. *Second semester; lecture and laboratory work; hours to be arranged; one lecture, two or four two-hour laboratory periods; three or five unit-hours.* Professor FARRINGTON, Mr. BENKENDORF and assistant.

4. Cheddar Cheese Making. Practical work in making, curing and scoring cheddar cheese, with lectures on the nature of the physical and chemical changes involved in the processes. *Second semester; one lecture a week; cheese making two or four two-hour periods; hours to be arranged; three or five unit-hours.* Assistant Professor SAMMIS and assistant.

5. Pasteurization. A study of the various methods of pasteurization of milk and cream under commercial conditions. *Second semester; laboratory work, assigned reading, and conferences; two unit-hours.* Mr. BENKENDORF.

6. Dairy Machinery. Shop practice with engines, boilers, artificial refrigerating machinery, pipe fitting, etc. *Second semester; laboratory work, assigned reading, and conferences; hours to be arranged; three unit-hours.* Mr. BENKENDORF and assistant.

7. Foreign Cheese Making. A study of the manufacture of Swiss, Brick and Limburger cheese. *Second semester; laboratory, conferences, and assigned reading; hours to be arranged; two unit-hours.* Assistant Professor SAMMIS and assistant.

19. Thesis. The thesis may be written on assigned topics in the department. *Throughout the year; two unit-hours.* Professor FARRINGTON and Assistant Professor SAMMIS.

For Undergraduates and Graduates

20. Milk Inspection and Testing. Methods used at farms, factories, and city supply stations, including the inspection of a number of farm dairies. *Throughout the year; confer-*

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ences, laboratory and field work; hours to be arranged; three or five unit-hours. Professor FARRINGTON and Mr. BENKENDORF.

21. Butter Yield and Quality. A study of the various factors in the process of butter making that influence the yield and the quality of the butter. *Throughout the year; conferences, laboratory and field work; hours to be arranged; three or five unit-hours.* Professor FARRINGTON and Mr. BENKENDORF.

22. Cheese Making and Curing. (a) A critical study of various methods employed by cheese makers for controlling the acid and moisture content of cheese curds. (b) The standardization of materials and methods in cheese making. *Throughout the year; conferences and laboratory work; hours to be arranged; three or five unit-hours.* Assistant Professor SAMMIS.

HORTICULTURE

PROFESSOR SANDSTEN; ASSISTANT PROFESSOR J. G. MOORE; MR. MILWARD, AND MR. ROGERS.

The courses offered in this department are designed to give the student a thorough working knowledge of the principles and practices of the most important lines of horticultural work.

Course 1 is prerequisite to all other courses offered by this department.

Soils 1 is prerequisite to course 6.

Course 2 is prerequisite to course 21.

Course 6 and Botany 20 are prerequisite to course 20.

Primarily for Undergraduates

1. General Horticulture. An introductory course designed to cover the principles of fruit growing and their application to our common fruits. *First semester; five lectures a week for one-half semester; two and one-half unit-hours.* Professor SANDSTEN.

2. Fruit Growing. This course covers practical work with spraying, pruning, cultivating and various other orchard practices, including construction of fruit packages, plans for storage houses, etc. *Second semester; two laboratory*

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periods a week; two unit-hours. Assistant Professor MOORE.

3. Vegetable Gardening. Designed to cover the practices and principles involved in the growing of vegetables. Includes practical work in the gardens, hot bed and cold frame construction, and manipulation. *Second semester; one lecture and two laboratory periods; three unit-hours.* Mr. ROGERS.
4. Vegetable Forcing. This course includes a discussion of forcing house construction and heating; principles involved in growing vegetables under glass with practical work in the forcing houses. *Throughout the year; two unit-hours.* Assistant Professor MOORE.
5. Economic Entomology and Pathology. A study of insects injurious to horticultural and agricultural crops. *Second semester; two laboratory periods a week; two unit-hours.* Mr. MILWARD.
6. Landscape Gardening. Field work, planning and mapping of grounds, lawns, etc. *Second semester; lectures and two laboratory periods a week; two unit-hours.* Professor SANDSTEN.
7. Plant Propagation. Instruction in the various methods of propagating horticultural plants. *Second semester; one lecture and one laboratory period a week; two unit-hours.* Assistant Professor MOORE.
8. Floriculture. The propagation and care of greenhouse, garden, and lawn plants with special reference to home floriculture. *Second semester; lectures and laboratory work; three unit-hours.* Assistant Professor MOORE.

19. Thesis. Based on research or experimental work in the department. *Two unit-hours.* Professor SANDSTEN.

For Undergraduates and Graduates

20. Plant Breeding. A study of the various laws relating to plant breeding and their application to horticulture. *One lecture and two or more laboratory periods a week at hours to be arranged; three unit-hours.* Professor SANDSTEN and Mr. ROGERS.
21. Experimental Horticulture. Planning of experiments, keeping records, and experimental work in the laboratory, greenhouses, or orchards. *Two or more laboratory periods*

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a week; two to five unit-hours. Professor SANDSTEN and Assistant Professor MOORE.

22. Pomology. Advanced course in the study of the classification and identification of our common fruits. *First semester; three unit-hours.* Assistant Professor MOORE.

BACTERIOLOGY

PROFESSOR RAVENEL; ASSOCIATE PROFESSOR FROST; ASSISTANT PROFESSOR HASTINGS; DR. FULLER, MR. HAMMER, MR. HOFFMANN, MR. SMITH.

The courses in agricultural bacteriology are planned to meet the needs (1) of students wishing to obtain a general idea of the relation of bacteria to agricultural processes; (2) of students intending to devote themselves to dairy husbandry or to veterinary medicine; (3) of students wishing to fit themselves for instructional or research work in general and applied bacteriology.

The course in general bacteriology (course 1) is a prerequisite for all other courses in agricultural bacteriology. Students who intend to take further work in the department, should take course 20 as a five hour study. Students wishing to major along the line of animal diseases should take courses 2 and 22.

Primarily for Undergraduates

1. General Bacteriology. A course designed to give an understanding of the morphology and physiology of bacteria, and laboratory training in cultural and microscopical technique. *First semester; lectures and laboratory; three unit-hours. Given in the College of Letters and Science.* Associate Professor FROST and Dr. FULLER.

3. Thesis Work in Agricultural Bacteriology. Students who desire to major in this department may select some special problem in animal diseases, dairy, or soil work, as thesis subject. *Throughout the year; two unit-hours.* Professor RAVENEL, Assistant Professor HASTINGS and Mr. HOFFMANN.

For Undergraduates and Graduates

2. Medical Bacteriology. A consideration of the relation of bacteria to disease processes in man and animals. A

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course designed to give the students who intend to study human or veterinary medicine, a survey of the subject of pathogenic bacteria. This course should be taken by students intending to devote themselves to general bacteriology. *First semester; lectures and laboratory; five unit-hours.* Professor RAVENEL and Mr. SMITH.

20. Agricultural Bacteriology. A general survey of the relation of bacteria to agriculture, embracing their relation to soils, manures, diseases of plants and animals, and to dairying. *Second semester; lectures; three or five unit-hours.* Professor RAVENEL; Assistant Professor HASTINGS; Mr. HOFFMANN and Mr. HAMMER.

21. Dairy Bacteriology. The relation of bacteria to the production of market milk, butter and cheese. *First semester; lectures and laboratory work; three unit-hours.* Assistant Professor HASTINGS and Mr. HAMMER.

22. Transmissible Diseases of Animals. A study of the transmissible diseases of domestic animals, especially important from the standpoint of the stockman. *Second semester; lectures; three unit-hours.* Professor RAVENEL.

Primarily for Graduates

30. Advanced Agricultural Bacteriology. Students who have sufficient preliminary training may take up the study of special problems in animal and plant diseases, in soil and dairy work. *Throughout the year; conferences and laboratory work; three unit-hours.* Professor RAVENEL, Assistant Professor HASTINGS and Mr. HOFFMANN.

AGRONOMY

PROFESSOR MOORE; MR. NORGORD AND MR. STONE.

Courses 1 and 2 in Agronomy train the student to judge competitive displays of grains and forage plants and to understand the best methods of farm crop production. The instruction given is designed to fit the students to grow pure bred seed grains intelligently or to operate general farms.

The new Agronomy Building is equipped with laboratories, seed rooms, judging rooms, and corn curing rooms, conveniently arranged for the students' use. A part of the University farm is

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used for breeding and testing farm crops which afford ample opportunity for student study and investigation.

The higher courses are more especially designed to fit students for positions with the United States Department of Agriculture, seed firms, or as assistants in experiment stations and colleges of agriculture, or still further prepare them for solving the more complex problems on the farm.

As a prerequisite for courses 19, 20, and 30, the student should first complete courses 1 and 2 in Agronomy and a course in Systematic Botany.

Primarily for Undergraduates

1. Cereals. Includes a systematic study of the judging of corn and small cereals grown in Wisconsin. The testing, planting, cultivation, harvesting, storing, and marketing of grain crops receive special attention. A study will be made of cereal rotation and its effects and a systematic arrangement of the farm fields for growing grains. *First semester; lectures and laboratory work; two and one-half unit-hours.* Professor MOORE, MR. NORGORD and MR. STONE.
2. Forage Plants. A study of forage plants for seed and feed production. The testing, judging and sowing of their seeds, best methods of handling and curing the crops. Alfalfa, clovers, millets, timothy, red top, corn, sorghums, soy beans, peas, various grasses, and grains for hay crops are especially considered. A continuation of grain judging and grading given in course 1. *Second semester; lectures and laboratory work; three unit-hours.* Professor MOORE, Mr. NORGORD and Mr. STONE.

19. Thesis. Original work and investigation on some assigned topic, bearing upon farm crops. Actual experiments will be required as far as practicable in the thesis work. *Throughout the year; two unit-hours.* Professor MOORE.

For Undergraduates and Graduates

20. Grain Inspection and Weed Control. Embraces a thorough study of grain, grass and legume seed, identification and inspection, including germination and purity tests. Purity

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tests will include the determination of the foreign seeds and foul material. The common and noxious weeds and their seeds will be studied with reference to their classification, to their injurious influences on the crops mentioned, and to the best means of prevention and eradication. *First and second semesters; lectures, assigned readings and laboratory work; three unit-hours.* Mr. STONE.

Primarily for Graduates

30. Breeding Grains and Forage Plants. A study of the methods pursued by plant breeders, supplemented by field work in the propagation of new varieties of grains and forage plants on the university farm. Common diseases that affect grains and forage plants, with best methods of prevention or extermination, will receive special attention. Outlines for experiments and original investigation of farm crops from a scientific and practical standpoint will be discussed. *Throughout the year; conferences, assigned readings and laboratory work; three unit-hours.* Professor MOORE.

AGRICULTURAL ENGINEERING

ASSISTANT PROFESSOR OCOCK.

The courses offered in this department instruct the student in the care and management of farm machinery; in planning and constructing farm buildings; in preparing and laying concrete for floors and walks; and in practical road building. These courses also offer training for students desiring to enter instructional or investigational work.

Course 1 covers in a general way the fundamental work of the department. Courses 2 and 4 cover many of the general and specific problems that arise in connection with the construction of farm buildings and fences. Courses 3 and 5 enable the operator to obtain the maximum efficiency and durability with the principal farm machines. It is important that the student bring to the work a fund of practical experience. It is desired that courses 3 and 5 be preceded by shop work (courses 1 and 7 of Mechanical Engineering).

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Primarily for Undergraduates

1. General Agricultural Engineering. A general course in farm power, tillage and harvesting machinery; construction and ventilation of farm buildings; demonstrations of the uses of concrete for farm purposes; practical road construction. *Second semester; second half, lectures and laboratory work; two and one-half unit-hours.* Assistant Professor Ocock.
2. Rural Architecture. The location of farm buildings with reference to general convenience and sanitation; construction of the farm house, barns, silos, etc.; heating and ventilation; platting home grounds, paddocks and fields. *First semester; lectures and laboratory practice; two two-hour periods; two unit-hours.* Assistant Professor Ocock.
3. Power Machinery. The construction, efficiency and operation of horse powers, windmills, gasoline and traction engines, electrical farm motors, pumps, feed grinders, etc. *First semester, lecture and laboratory practice; three two-hour periods; three unit-hours.* Assistant Professor Ocock.
4. Cement Work. Instruction in concrete for farm purposes. *Second semester; lectures and laboratory practice; two two-hour periods; two unit-hours.* Assistant Professor Ocock.
5. Farm Machinery. Tools and machinery for preparing the seed bed, sowing or planting, tilling and harvesting crops. *Second semester; lectures and laboratory practice; three two-hour periods; three unit-hours.* Assistant Professor Ocock.
6. Farm Machinery. Work with farm machinery. For students preparing themselves as field experts. Prerequisite, course 5 or its equivalent. *Second semester; lectures and laboratory practice, hours to be arranged; three unit-hours.* Assistant Professor Ocock.
7. Road Building. The construction of earth, macadam, and stone roads; practical work with the King road drag, road graders, etc. Field work in road drainage, leveling, etc. *Second semester; lectures and laboratory practice, hours to be arranged; two unit-hours.* Assistant Professor Ocock.

19. Thesis. This course varies in the subject matter, according to the lines in which the thesis is written. *Throughout the year; two unit-hours.* Assistant Professor Ocock.

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AGRICULTURAL ECONOMICS

ASSOCIATE PROFESSOR TAYLOR.

The following courses in economics are presented from the agricultural point of view. Courses 1 and 26 are intended for juniors. Courses 27 and 28 may be elected by seniors and graduate students who have taken courses 1 and 26.

Primarily for Undergraduates

1. The Elements of Economics. An introductory course in general economics in which illustrative material is taken from the fields of interest to the farmer. The following subjects will be treated; the evolution of industrial society; the institutions which regulate the economic activities of men; economic motives; the natural and the artificial conditions of wealth production; the theory of value, money, credit, rent, wages, interest, and profits; taxation and public expenditure; public ownership and regulation of industries. *First semester; three recitations per week; three unit-hours.* Associate Professor TAYLOR.

26. Agricultural Economics. This course consists of a study of the economic principles which underlie farm management, estate management, and agrarian legislation. Especial attention is given to the following subjects: the principles to be followed in selecting land, equipments and crops, and in determining the proper degree of intensity of culture, the proper size of farms, etc.; the forces and conditions which determine the price of land, equipments, and farm products; the ownership of land; the means of acquiring land; the leasing of land; co-operation in agriculture; the government in its relation to agriculture. *Second semester; two recitations per week; two unit-hours.* Associate Professor TAYLOR.

18. Thesis Course. Opportunity will be given for research work on the various economic problems in agriculture according to the interests of the students. *Throughout the year; two unit-hours.* Associate Professor TAYLOR.

For Undergraduates and Graduates

27. Historical and Comparative Agriculture. This course consists of a sketch of the development of agriculture in Eng-

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land and the United States, and a special study of the recent history and present status of American agriculture, with an attempt to find the explanation of historical changes and geographical differences in methods of farm management. *First semester; two lectures per week; two unit-hours.* Associate Professor TAYLOR.

28. Research Work. In 1909–10 this course will be devoted to the recent changes in the organization of American agriculture. *Second semester; two unit-hours.* Associate Professor TAYLOR.

AGRICULTURAL JOURNALISM

MR. MARQUIS.

Primarily for Undergraduates

1. Agricultural Journalism. This course is designed to meet the demands of those students who wish to study the special needs of the agricultural press in order to become contributors or editors. It is also planned to be of aid to those students expecting to enter upon investigational work, giving them special training in the preparation and publishing of technical matter. The work includes lectures and practice in writing to meet the special requirements of the agricultural journals. The lectures treat the history and technology of printing, history of agricultural journalism, survey of the present agricultural press, classes of agricultural writing, reporting of fairs, stock and corn shows, technical writing and photography for the press. The exercise will include practice in the preparation of the articles of the various classes, editing, proof reading, reviewing, interviewing, preparation of special articles, etc. *Second semester; two unit-hours.* Mr. MARQUIS.

HOME ECONOMICS

The Home Economics department has been transferred from the College of Letters and Science to the College of Agriculture and has undergone an entire reorganization. A new staff will give instruction during 1909–10. Information about this course is given in separate circular which may be had by addressing the Dean of the College of Agriculture.

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THE SHORT COURSE IN AGRICULTURE

This course is designed to meet the needs of young men who desire to increase their skill and knowledge of agricultural science and practice by studying during the winter months. The course covers two winter terms of fourteen weeks each beginning about December 1. All of the laboratories, equipment and the corps of instructors of the College of Agriculture are available for advice and counsel. This course is made intensely practical and the work is conducted along lines which can be fully appreciated by the student who is familiar with farming but who has had only a common school education. An illustrated circular describing the Short Course in detail will be sent upon application to Prof. D. H. Otis, College of Agriculture, Madison, Wis.

THE WINTER DAIRY COURSE

This course is open to persons who have had at least six months experience in a creamery or cheese factory and covers one term of twelve weeks, beginning about November 1. Instruction consists of both lectures and laboratory work, the latter being given in various departments, which gives each student practical experience in all of the lines of butter and cheese making. Certificates are given to those who have satisfactorily completed the full course and have worked in a creamery or cheese factory for two seasons of not less than seven months each, one of which is before and the other after the period spent in the Dairy School. The student must report the monthly operations of his factory on proper blanks furnished by the school. The University sends an authorized person to inspect the factory of the candidate and a certificate is issued if a favorable report is made by this inspector. An illustrated circular describing the Dairy Course in detail will be sent upon application to Prof. E. H. Farrington, Dairy School, Madison, Wis.

THE SUMMER DAIRY SCHOOL

Students are admitted to this course at any time during the spring and summer after March 1. They are expected to remain at least ten weeks, although they may continue the work longer,

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if desirable. No previous experience in dairy work is required as the course is intended for beginners or for persons having little practical knowledge of creamery or dairy work. Students assist in the different departments of the University creamery, thus gaining much practical experience. Under the supervision of instructors, laboratory exercises and theoretical instruction are given as required.

THE SPECIAL DAIRY COURSE

This course is designed to meet the needs of creamery and cheese factory operators and managers and to give them advanced instruction in connection with problems of the management of their establishments as well as to inform them on recent advances in the science of dairying. The instruction is by means of lectures, demonstrations, laboratory exercises and conferences led by members of the staff of the Dairy School assisted by experts from other states. The course is held at the time of the Farmers' Course giving those in attendance an opportunity to secure some of the advantages of the latter course. Detailed information may be secured upon application to Prof. E. H. Farrington, Madison, Wis.

THE FARMERS' COURSE IN AGRICULTURE

This is a popular course of addresses, demonstrations and exercises covering a period of two weeks, designed to give busy farmers the most useful instruction and practice in the science of agriculture in the shortest possible time at a season when they can be away from home for a brief period. The course is usually given during the second and third weeks of February by the staff of the College of Agriculture assisted by other speakers. The plan of instruction includes 35 minute lectures followed by discussions. The laboratory exercises and demonstrations occupy longer periods according to the requirements of the subject. A special circular describing this course will be sent upon application to Prof. D. H. Otis, Madison, Wis.

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THE WOMEN'S COURSE IN HOME-MAKING

This course is designed to give the women as much practical and helpful instruction in the various phases of home economics as can be covered in one week. The plan of instruction includes lectures and demonstrations on such subjects as cooking, serving and nursing. The course is held at the same time as the Farmers' Course to afford an opportunity for farmers' wives and daughters to attend. Detailed information will be furnished upon request to Prof. D. H. Otis, Madison, Wis.

THE FARMERS' INSTITUTES

George McKerrow, Superintendent.

The Department of Farmers' Institutes of the College of Agriculture is established through legislative provision which appropriates $20,000 annually for the purpose of conducting farmers' institutes at various points throughout the state. The superintendent directs the work and is assisted by special conductors and workers who direct the various institutes. Members of the agricultural faculty assist, as time permits, by giving addresses, demonstrations, etc. Experts from other departments are engaged to meet special needs. Local and out of state speakers are employed.

During the 1908-09 institute season, which extended from December to March, one three-day and 120 two-day institutes a special potato institute and a special horse-breeding institute were held in as many different places in the state. Cooking schools under the direction of experts were held in connection with 42 of the institutes. The annual three-day round-up institute was held at Mondovi, Buffalo County, March 16-18, 1909.

Farmers' Institute Bulletin

This hand book contains a stenographic report of the closing institute held at Richland Center in March, 1908, and is published in an edition of 60,000 copies and distributed among schools, district libraries, to farmers attending institutes and to

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other farmers through cheese factories, creameries, etc. Copies are also sent to all applicants living within the state upon receipt of 10 cents to pay postage and mailing if paper covers are desired and 25 cents for cloth covers. To those outside of Wisconsin, 25 cents for paper-covered and 40 cents for cloth-covered copies is charged.

THE AGRICULTURAL EXPERIMENT STATION

H. L. RUSSELL, Director.

The Agricultural Experiment Station is organically associated with the College of Agriculture and members of the faculty of the college constitute the staff of the station. The purpose of the Agricultural Experiment Station is the promotion of agricultural science by research and experimentation. The funds for the work of the station come from both state and federal appropriations. Such subjects are selected as are of the greatest importance to the farmers of Wisconsin, so far as the facilities at hand permit. The endeavor at all times is to conduct investigations of a fundamental character rather than demonstrations of known facts in agricultural science. The station also disseminates general information on agricultural topics, its staff devoting a large amount of time to correspondence, interviews and public addresses.

The publications of the Experiment Station include an Annual Report, a series of popular bulletins, and a series of research bulletins. The popular bulletins, including helpful discussions of the results of experiments, are distributed free to residents of the state upon application and are issued in editions of 2,000 to 50,000 copies. The research bulletins contain technical data and discussions not designed for wide distribution and are sent to libraries, investigators, etc. Twenty-five annual reports and over 175 bulletins have been issued. Any person desiring to receive the popular bulletins should apply to Director H. L. Russell, Madison, Wis.

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THE COLLEGE OF MEDICINE

C. R. BARDEEN, Dean, Professor of Anatomy.

Organization

During the legislative session of 1907, a bill was passed authorizing the establishment of a College of Medicine at the University. This college was opened for the matriculation of students at the beginning of the fall semester, 1907. The complete work of the first year and a large portion of that of the second year of the medical curriculum was offered for 1907-08. Meanwhile, departments of pathology and of pharmacology and toxicology have been established, so that, beginning with the fall semester of 1908, the complete curriculum of the first two years of the medical course is given. Lack of adequate clinical facilities prevents the establishment at Madison of the last half of the medical course. Full credit will, however, be granted at leading schools for work at Wisconsin, so that on the completion of the work here the student may go to some school with abundant hospital and clinical facilities for the completion of his course by two years of further study.

Aims and Methods

The a'ms of the College of Medicine are fourfold:

1. To encourage a thorough preliminary medical education, and to offer adequate facilities for a thorough preparation for clinical work.

2. To aid physicians and others in the state to keep up with the rapid advances in the application of science to medicine.

3. To promote the development of preventive medicine and hygiene.

4. To stimulate research in the sciences upon which modern medicine is based.

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Admission Requirements in the College of Medicine*

For unconditional matriculation in the College of Medicine, a student must furnish evidence:

1. That he has satisfied the requirements for admission to the College of Letters and Science.
2. That he has completed at least the full equivalent of two years' work in this College.
3. That he has successfully pursued laboratory courses of collegiate grade in physics, chemistry, and biology.
4. That he has studied Latin grammar and possesses such knowledge of the language as may be acquired by reading at least three books of Caesar or their equivalent.
5. That he has a reading knowledge of French and German.

Admission to Advanced Standing

A student who has completed elsewhere work equivalent to that required for matriculation and to that of the first year of the medical curriculum, may be admitted to the second year of the medical course.

Medical Certificate

Upon the successful completion of the two years of the medical curriculum at Wisconsin, a student will be given a formal certificate at the following commencement. A student who completes less than the two years of the medical course may, however, obtain credentials covering the pre-medical and medical studies which he has pursued.

Degrees of Bachelor of Arts and Bachelor of Science

Candidates for the degree of Bachelor of Arts may be registered but one year in the College of Medicine.

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* Three medical schools in this country require for matriculation a degree from a college of liberal arts or science; one school requires three years of work in a literary or scientific college; four require two years' work, and over fifty schools require now, or will after January 1, 1910, in addition to a four year high school course, one or two years of college work devoted especially to physics, chemistry, biology and language. The National Confederation of State Licensing and Examining Boards, in June, 1906, adopted this as the minimum standard to apply to all students beginning the study of medicine after January 1, 1910.
The State Medical Board of Minnesota requires evidence of the completion of the sophomore year in an approved college.

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Course) may be registered two years in the College of Medicine. Course) may be registered two years in the College of Medicine. The language requirements are those required for admission to the College of Medicine. Students may elect up to eighteen unit-hours per semester and may confine their work to the science and language groups of studies.

CHOICE OF COURSES

The student who enters the College of Letters and Science with the intention of studying medicine should arrange his work according to one of the following plans:

1. Six-Year Combined Course. (Leading to the B. S. and M. D. Degrees.)

If the student has had a thorough preparation in the high school, he may take work in the freshman and sophomore years which will enable him to matriculate in the College of Medicine in his junior year, receive the B. S. degree and a certificate for two years of medical study at the end of the senior year, and complete his medical course by two years' further study in any medical school which does not require more than two years of college work for entrance. During the freshman and sophomore years, such a student will have to confine himself closely to the work in science and language required for matriculation in the College of Medicine. The exact choice of studies will depend somewhat upon the high school training and the ability of the student.

The following schedule is suggested:

Freshman Year

English I. Three hours a week. 3 units.
Physics I. Lectures.—M., Tu., W., Th.—12.
Two laboratory periods. 5 units.
Quiz.—5 units.
Foreign language. 3—5 units.
French or German, if Latin is presented for entrance.
Latin, if it is not prsented for entrance.
Chemistry I. Lectures.—M., W., F.—10.
Laboratory,—Three two hour periods per week.
Quiz.—Tu.—11. 5 units.
If desired, Biology I may be taken instead of Physics I.

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Sophomore Year

Foreign language (French or German) 3—4 units.
Organic chemistry. Lectures—Tu., Th.—8.
Laboratory—Tu., Th.—2—4. 4 units.
(One semester of this course is required. It may be taken for two semesters).
Biology I. Lectures, M. W., 8; laboratory, 8 hours per week; Quiz, 5 units.
If Biology I is taken in the freshman year, Comparative Anatomy and Embryology are recommended for the sophomore year.

2. Seven-Year Combined Course. (Leading to the A. B. and M. D. Degrees.)

In this course the student matriculates as a first-year medical student during his senior year in the College of Letters and Science; receives the A. B. degree upon graduation and takes the second year of the medical course as a graduate student. He can then finish the clinical portion of the medical course by two years' further study, thus making the combined arts and medical course seven years. This course is in many ways preferable to the six-year combined course, since it permits a greater freedom of election and a broader course of study. The language and science work should follow somewhat the lines laid down for the freshman and sophomore years in the six-year combined course, but it can be more spread out and taken in conjunction with various electives to suit the needs and inclinations of the student.

3. Complete Arts Course Preceding the Medical Course.

Students who can afford the time should take the complete arts course before beginning the technical work of the medical course. A bright, well-trained student not infrequently manages to take the A. B. degree in three years. For such a student, the time needed for the two degrees would be the same as that mentioned above. For other students eight years is required, four for the A. B. course and four for the medical course. A far broader training is thus afforded than in the shorter combined course. Students expecting to finish the clinical part of the medical course at Harvard, the Johns Hopkins, Cornell, or Western Reserve University must choose either the course of study mentioned above or the seven-year combined course. The work in sciences and foreign language should include all of that mentioned in the first two years of the six-year combined course and may profitably extend beyond this.

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Medical Studies

Two years of work in the fundamental medical sciences is arranged in accordance with the schedules which prevail in those medical schools that have high standards for their entrance requirements. The chief studies of the first year are systematic human anatomy, histology, neurology, and physiological chemistry. A preliminary course in physiology is also given. Some opportunity is offered for mak'ng up conditions in chemistry, embryology or language, or for advanced work. In the second year, practical physiology, psychology, pathological anatomy and physiology, bacteriology, pharmacology and toxicology are the chief subjects. The subjects are arranged in conjunction with those of the pre-medical courses, so that a logical sequence of studies may be followed, and that the student may concentrate his work upon closely allied subjects. While it is believed that the arrangement of courses recommended will best fit the needs of the average student, considerable freedom of election will be allowed both in the pre-medical work and in the work in the College of Medicine, especially to those who finish the arts course before taking the medical course, or to those taking the seven-year combined course. Full credit for one year of medical work will not, however, be allowed unless the required preliminary studies and the studies of the first year of the medical course have been completed, and the student has been registered two semesters in the College of Medicine. Full credit for two years of medical work will be granted only to those who have satisfied the preliminary requirements, who have registered for two college years as medical students, and who have completed all the required studies of the curriculum.

First year:

Histology, M., W., F., 9–12, first semester.
Neurology, M., W., 9–12, second semester.
Physiological Chemistry, Tu., Th., F., S., 10–1, second semester.
Physiology (preliminary), Tu., Th., 12–1, second semester.
Human Anatomy, daily, 8–5. At least twelve hours per week required.

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Bacteriology 1 is an elective in the first year of the medical course. If preferred, it may be taken in the second year. Organic chemistry and embryology are required in the first year of the medical course if not presented for matriculation.

Second year:

Topographical Anatomy, M., W., 2–5, first semester. (Elective).

Physiology, Lect., daily 12–1, first semester; laboratory Tu., Th., 2–5; first semester to Christmas.

Psychology, Lect., M., W., 11, first semester to Christmas; laboratory 2–5 twice a week, Christmas to the end of the first semester.

Pathology, M., W., F., 8–12, first and second semesters. Eight hours per week required, four elective.

Bacteriology, Protozoology and Hygiene, Tu., Th., S., 11, and six hours' laboratory work; second semester.

Pharmacology and Toxicology, Lect., M., Tu., Th., F., 2–3; laboratory, W., 2–5, second semester.

Physical diagnosis, 3–6 twice a week, second semester. Two units (elective).

Thesis (Required of candidates for B. A. and B. S. degrees).

When work of the medical course is elected previous to matriculation in the College of Medicine, advanced work in some of the medical sciences may be elected in the medical course.

SUMMARY

Summary of the college work in science required at Wisconsin* for matriculation, and for certificates for the medical course:

* It is recognized that similar courses at other institutions may not corespond exactly with the scientific courses given at Wisconsin. This will not prevent full credit being granted for approximately equivalent courses pursued elsewhere.

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Subject	Lectures and Recitations	Laboratory Hours	Unit Hours
Preliminary—			
Chemistry	128	192	10
Physics	160	128	10
Biology	96	256	10
	384	576	30
Studies required in first year of medical course if not presented for matriculation.			
Organic Chemistry	48	96	4
Embryology	32	64	3
	80	160	7
First Year Medical Course—			
Histology	32	112	4
Neurology	32	64	3
Syst. Anatomy	32	352	12
Physiology	30		2
Physiol. Chemistry	20	148	4
	146	676	25
Second Year Medical Course—			
Physiology	80	72	7
Psychology	32	24	2
Pathology	96	160	8
Bacteriology and Hygiene	32	120	5
Pharmacology and Toxicology	64	48	5
	304	424	27
Thesis (Required of candidates for B. A. and B. S. degrees.)	128		4

Courses for Physicians

The regular courses in the various departments are open to physicians on the adult special basis. It is hoped gradually to develop such shorter special courses as may be of greatest direct, practical benefit to the physicians of the state in aiding them to keep up with the rapid advance in the medical sciences. Suggestions concerning such courses are desired.

Courses for Health Officers

In conjunction with the State Department of Public Health, it is intended to develop such special courses for public health offi-

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cers as may be of greatest aid to them in the performance of their important and difficult duties. Suggestions concerning such courses are requested from all interested in the subject.

Sanitary Engineering

Courses in Sanitary Engineering are given in the College of Engineering. See Index under Engineering and special bulletins of the College of Engineering.

Scientific Investigation

It is desired that the facilities of the various laboratories of the College of Medicine be utilized to the greatest advantage in the investigation of the causes and prevention of disease both in man and animals. The laboratories of the College of Medicine are freely open to those engaged in such investigations, and so far as possible, aid will be given in the carrying out of investigations of this character either at the University or elsewhere in the state.

FEES AND EXPENSES

The total amount of incidental and laboratory fees per year for pre-medical and medical students will range from about $60.00 to $80.00 according to the amount of laboratory work taken. For details of general and laboratory fees in this college, see Index.

DEPARTMENTAL ANNOUNCEMENTS

For a description of the courses in botany, zoology, chemistry, psychology, climatology and languages, see departmental announcements in the College of Letters and Science.

ANATOMY

PROFESSOR BARDEEN; ASSOCIATE PROFESSOR MILLER; ASSISTANT PROFESSOR ALLEN; AND MR. WAHL.

A group of courses intended to offer a comprehensive view of the gross and microscopic anatomy and the embryology of vertebrates with special reference to man, is given in the department. In addition, opportunities are offered for advanced work and research in anatomy. The laboratory is thoroughly equip-

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ped with apparatus, models, books and materials for advanced as well as elementary work.

For those prepared to carry on advanced research, special laboratory facilities are provided.

A Journal Club meets bi-weekly for the discussion of important contributions to anatomical science.

For Undergraduates and Graduates

5. Comparative Anatomy of Vertebrates. A series of seven animals is dissected for the study of vertebrate structure, and numerous demonstrations are given of the structure of related forms. *M., W., F., 2 to 4.* The work of either or both semesters may be taken. Assistant Professor ALLEN.

6. Comparative Anatomy. This course embraces the study of the structure of a number of animal types of especial interest in medicine. Attention will be paid to the physiology and life history of the types studied. *First semester; Tu., Th., 2 to 4. Two unit-hours.* Assistant Professor ALLEN.

10. Histology and Organology. The study of the tissues, histology, is first taken up, and this is followed by the study of the minute structures of the chief mammalian organs in the following order: the blood and blood-forming organs, the organs of circulation, digestion and respiration, the genito-urinary organs, the skin and its appendages. *First semester; M., W., F., 9 to 12. Four unit-hours.* Associate Professor MILLER.

15. Vertebrate Embryology. The development of the frog, chick and pig is studied by means of dissection and the use of microscopic preparations. Human embryology is studied from sections, special preparations and models. *Second semester; Tu., Th., 2 to 5.* Professor BARDEEN and Assistant Professor ALLEN.

17. Problems of Vertebrate Embryology. This course involves a study of: (a) The development, structure and physiological relations of the sex-cells; (b) Early stages in the development of the embryo under normal and experimental conditions. Current theories of inheritance and

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regeneration will be discussed. *Second semester; M., W., F.,* 11 *to* 1. Assistant Professor ALLEN.

21. Human Anatomy. In this course a thorough training is offered in the dissection of the human body, and in descriptive human anatomy. This course is open only to those who have had course 5 or its equivalent. *Throughout the year; daily,* 8 *to* 5. *At least* 12 *hours' laboratory work per week required. Six unit-hours per semester.* Professor BARDEEN.

22. Topographical Anatomy. A study of frozen sections and special preparations. *First semester; M., W.,* 2 *to* 5. *Two unit-hours.* Associate Professor MILLER.

23. Special Human Anatomy. Those qualified to do independent work may make special arrangements for the study of human anatomy.

26. Neurology. This course consists of dissection of the human brain, and a study of the microscopic anatomy of the central nervous system and sense organs. Open only to those who have taken courses 10 and 15, or their equivalents. *Second semester; M., W.,* 9 *to* 12. *Three unit-hours.* Associate Professor MILLER.

30. Advanced Work in Anatomy. Opportunity for advanced study in the field of human and comparative anatomy, gross and microscopic, in embryology and experimental morphology, and in laboratory technique is offered to properly qualified students. This work will be done under the direction of various members of the staff.

31. Historical Seminary. This meets bi-weekly for the study of the history of anatomy and related subjects. *One unit-hour.* Associate Professor MILLER.

Primarily for Graduates

35. Investigation under direction. To qualified students the department is prepared to offer problems for investigation and training in methods of research. Special arrangements for this work may be made with the individual members of the staff.

36. Journal Club. This meets bi-weekly for the study of current scientific articles relating to anatomy.

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40. Independent Investigation. The department will welcome independent investigators who wish to make use of its facilities for conducting research in anatomy.

PHYSIOLOGY AND PHYSIOLOGICAL CHEMISTRY

PROFESSOR ERLANGER; ASSISTANT PROFESSOR BRADLEY; AND DR. MEEK.

For Undergraduates and Graduates

The following courses are designed especially for students intending to study medicine or to teach the biological sciences. Course 4 is open only to those who have had a previous training in General and Organic Chemistry (courses 1 and 20), Physics (course 1) and General Biology (course 1). As a preparation for course 5, Comparative Anatomy, Histology, and Neurology (Anatomy 5, 10 and 26), and course 4 are required.

4. Physiological Chemistry. (a) Lectures. These give a brief summary of the entire province of physiological chemistry. (b) Laboratory course. This includes the chemistry of various substances, such as proteins, which are usually not familiar to the student of pure chemistry, a chemical study of most of the tissues and fluids of the body, and a study of those physiological chemical processes that can be closely imitated outside the body, special emphasis being laid on such enzymic processes as salivary, pancreatic and gastric digestions. The course also includes a quantitative analysis of urine (normal and pathological), milk, gastric juice, stomach washings and foods, and an examination of the faeces with special reference to putrefactive processes. (c) Conferences are held for the discussion of the laboratory work, and for the consideration of the progress and needs of the students. *Second semester; Tu., Th., F., S.*, 10 *to* 1. *Four unit-hours.* Assistant Professor BRADLEY.

5. Physiology. The following subjects are considered: Muscle and nerve, central nervous system, special senses, blood, circulation, respiration, secretion, digestion and nutrition. (a) Lectures. (1) Preliminary Course. *Second semester; Tu., Th.*, 12; *two unit-hours.* (2) Continued course. *First semester; M., Tu., W., Th., F.*, 12; *five unit-hours.* (b)

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Laboratory work. The preliminary course of lectures must precede, and the continued course of lectures be taken in conjunction with or precede the laboratory work. *First semester until the Christmas recess; twice weekly, 2 to 5. Two unit-hours.* Professor ERLANGER and Dr. MEEK.

Primarily for Graduates

8. Advanced Laboratory Course in Physiology. This course is designed primarily for teachers of animal physiology, as well as for physicians and students of medicine who desire a wider experience in experimental physiology than can be gained in course 5. It consists mainly of experiments demonstrated in course 5. The time or amount of work is not limited, except that assistance must be arranged for by definite engagements. The instruction is given individually and may involve undertaking a definite investigation. Professor ERLANGER.

10. Advanced Laboratory Course in Physiological Chemistry. This course corresponds to course 8.

12. Journal Club. Advanced students are expected to report from time to time upon papers of physiological and physiological-chemical interest that may appear in the current journals. *One hour a week throughout the year.*

BACTERIOLOGY AND HYGIENE

PROFESSOR RAVENEL; ASSOCIATE PROFESSOR FROST; ASSISTANT PROFESSOR HASTINGS; DR. FULLER, MR. HOFFMAN, MR. SMITH AND MR. HAMMER.

For students desiring a general laboratory course in Bacteriology, course 1 should be taken. Chemistry and General Biology should precede this work. On the basis of this general course, the student is then able to take up special work in Medical Bacteriology. Course 1 is a prerequisite for major work in Medical Bacteriology.

Primarily for Undergraduates

1. General Bacteriology. A general survey of the entire field of bacteriology from the biological point of view. *First semester;* lectures *Tu., Th.*, 11; laboratory work, *six hours a week.* Associate Professor FROST and Dr. FULLER.

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2. Medical Bacteriology. This course, which is especially designed for medical students, considers the bacteria and protozoa that are especially concerned in the production of disease processes. Course 1 is a prerequisite. *Second semester; lectures, Tu., Th., S.*, 11; laboratory work, *six hours a week.* Professor RAVENEL, Associate Professor FROST, and Mr. SMITH.

7. General Hygiene. *First semester; one unit-hour.* Associate Professor FROST.

6. Communicable Diseases. *Second semester; one unit-hour.* Associate Professor FROST.

8. Biology of Water Supplies. This course includes a study of the elementary principles and technique of bacteriology, the hygiene of water-borne diseases, the testing of water purification plants, and the important microscopical organisms. Lectures and laboratory work. *Second semester; three unit-hours.* Dr. FULLER.

3. Thesis work in Bacteriology. Professor RAVENEL and Associate Professor FROST.

For Undergraduates and Graduates

4. Topical Work in Bacteriology. Laboratory work and conferences. Professor RAVENEL and Associate Professor FROST.

11. Immunity. Includes a study of the phenomena and theories of immunity in general as well as the various infectious diseases. Lectures and reports. Open only to advanced students. *First semester; one unit-hour.* Associate Professor FROST.

11a Laboratory Course in Immunity. This is an experimental course and includes a study of cytotoxins, agglutinins, precipitins, toxins, antitoxins, opsonins, etc. *First semester; two or more unit-hours.* Associate Professor FROST.

12. Pathogenic Protozoa. This includes a study of the most important of the protozoa known to cause human and animal diseases. Open only to advanced students. Lectures, demonstrations and reports. *Second semester; one unit-hour.* Associate Professor FROST.

5. Research Work in Bacteriology. Opportunity is offered for work in original investigation, which may be arranged for

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on consultation. A reading knowledge of French and German is necessary. Professor RAVENEL and Associate Professor FROST.

18. Milk Hygiene. A course of lectures and laboratory work dealing with the hygienic aspects of city milk supplies. The methods used in municipal laboratories for the quantitative and qualitative bacteriological examination of milk are studied. The examination of milk for leucocytes. Study of municipal regulations. *First semester; five unit-hours.* Given in the College of Agriculture. Assistant Professor HASTINGS.

19. Bacteriology of Animal Diseases. Laboratory work, assigned literature and conferences. *Second semester; three to five unit-hours.* Given in the College of Agriculture. Professor RAVENEL and Mr. SMITH.

PATHOLOGY

PROFESSOR BUNTING AND DR. BROWN.

1. General Pathology. The course comprises instruction by lecture, recitation, demonstration and laboratory exercises in the principles of general human pathology and in the essentials of pathological anatomy. The laboratory exercises will be devoted mainly to a study of pathological histology and to demonstration of gross morbid specimens. *First semester; M., at* 8; *W.*, 8 *to* 11; *F.*, 8 *to* 12.

2. Special Pathology. The course is a continuation of course 1, and in it special pathology and special pathological anatomy will be treated in a similar manner. *Second semester; M., at* 8; *W.*, 8 *to* 11; *F.*, 8 *to* 12.

3. Experimental Pathology. In this course by suitable experiments the work of courses 1 and 2 will be supplemented and elaborated. *First and second semesters; M.*, 9 *to* 12.

Courses 1, 2, and 3 are open to students who have successfully completed courses in histology and embryology. Courses 1 and 2 are required of medical students. Course 3 is optional.

4. Advanced Courses. To a limited number of students who have completed courses 1 and 2 or their equivalent, op-

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portunity is offered for advanced work in pathology under the direction of Professor BUNTING.

PHARMACOLOGY AND TOXICOLOGY

PROFESSOR LOEVENHART AND DR. GROVE.

Elementary and advanced courses in pharmacology and toxicology are offered in this department. Study of the action of drugs on the body is taken up from various points of view, including the biological, chemical, medico-legal and therapeutic aspects of the subject. The practical needs of the medical student in his subsequent work receive especial attention. For the elementary courses a previous training in physiological chemistry and physiology is required. The advanced courses are open to those who have had adequate elementary training.

1. Toxicology. A course of lectures on the general action of those drugs the toxicological importance of which overshadows their therapeutic use. Attention is given to the diagnosis of poisoning, treatment, and the mode of conducting an autopsy when the tissues are to be subsequently examined chemically in medico-legal cases. *First month, second semester; M., Tu., Th., F., at* 2. *One unit when accompanied by course* 2. Professor LOEVENHART.
2. Toxicology. Laboratory course. The work of this course is correlated with that of course 1. A chemical study is made of the principal volatile poisons, the alkaloids, the glucosides and the metallic poisons. Special attention is given to the chief tests for the identification of these poisons. *First month, second semester; W.,* 2 *to* 5. Professor LOEVENHART and Dr. GROVE.
4. Pharmacology. A course of lectures covering the province of pharmacology. Attention is paid to the chemistry, the pharmacological and toxicological actions and the therapeutic uses of the chief medicinal drugs. Practice in prescription writing forms a part of the course. From the conclusion of course 1 to the end of the second semester. *M., Tu., Th., F., at* 2. *Three unit-hours.* Professor LOEVENHART and Dr. GROVE.
5. Pharmacology. Laboratory course. A series of experiments selected to give opportunity to the student to learn gen-

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eral pharmacological technique and to become acquainted with the kind of evidence from which conclusions can be drawn concerning the action of drugs. From the conclusion of course 2 to the end of the semester. *W.*, 2 *to* 5. *One unit-hour*. Professor LOEVENHART and Dr. GROVE.

8. Advanced Work. Those qualified to undertake advanced work and research in pharmacology and toxicology may make arrangements for conducting such work under the supervision of Professor LOEVENHART.

12. Independent Investigation. To anyone qualified to carry on work of this character the facilities of the laboratory are available.

16. Journal Club. A meeting of the Journal Club is held weekly in conjunction with the departments of Physiology and Pathology. Advanced students will be expected to report from time to time upon current papers dealing with the experimental aspects of these sciences. *Throughout the year; Tu. at* 9.

PHYSICAL DIAGNOSIS

A course in physical diagnosis is offered during the second semester. *Twice a week*, 3 *to* 6. *Two unit-hours*. Professor ELSOM.

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THE SCHOOL OF MUSIC

ROSSETTER G. COLE, Director, Professor of Music.

General Announcement

It is the purpose of the School of Music to furnish superior facilities for the study of music in all of its departments, theoretical or practical. Instruction is offered in piano, organ, violin, singing, harp, mandolin, guitar, and banjo, and in musical theory, history of music, choral practice, harmony, counterpoint, composition, and methods in public school music. In the study of piano or singing (voice culture) instruction is given by means of private or individual lessons, or, should a sufficient number of students desire it, classes limited to three will be organized. In the study of other instruments, private lessons only are employed. In the theoretical studies students are expected to join the University classes.

To meet the convenience of students residing either permanently or temporarily in distant parts of the city, an office and studios are provided in the Kroncke Building, in addition to those in Assembly Hall at the University. Applications for lessons may be made at either place, the lessons being given where it is found best to suit the convenience of instructor and student.

The lessons vary in length and in number per week, for the purpose of adequately meeting the wants of all classes of students, from those who take a large amount of work in other departments of the University to those who devote themselves especially to the study of music with little or no collateral work. In like manner the fees for special instruction vary according to the length and frequency of lessons. For schedule of fees see Index under Tuition.

It should be observed that special instruction in vocal or instrumental music of any kind may be taken by students not otherwise connected with the University, and that such students are not required to pay the incidental fee required of all University students.

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The general classes in harmony, counterpoint, history of music, musical composition, general methods in public school music, principles of music education, musical appreciation, masterpieces of music, and choral music, may be taken as electives by students of the College of Letters and Science, freshmen excepted, and credit will be given on the same basis as for other collegiate studies. These classes are likewise open to students of the other colleges and schools of the University without extra fees.

Students of the School of Music not otherwise connected with the University are admitted to these classes on the payment of the usual incidental fee charged to students of the College of Letters and Science ($10 per semester). The tuition fee which is required for students in the University who are not residents ot the state is not required of non-resident students who are registered only in the School of Mus'c.

A statement of courses and classes follows. For a statement tered only in the School of Music.

COURSES OF THE SCHOOL

There are two general courses in the School of Music, viz.: (1) the collegiate course, and (2) the academic course.

I. The Collegiate Course

In this course the requirements for admission are the same as for the general courses in the College of Letters and Science, or for adult special students, together with such proficiency in some department of music, as is stated in connection with the outlined courses of study. A graduate's diploma will be granted on the satisfactory completion of this course. While in general four years of study are required, this period may be lengthened or shortened according to the student's ability. The following theoretical work is also required: musical theory, harmony (two years), history of music (one year), and musical appreciation.

II. The Academic Course

This course is open to persons not members of the University, and also to University students who do not desire to enter the collegiate course leading to graduation. Students of this course may, however, be admitted to the musical classes of the Un'ver-

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sity on the payment of the usual incidental fees charged to students of the College of Letters and Science ($10 a semester), but will not be considered candidates for graduation or for a diploma. If, however, at any time such students should be transferred to the collegiate course, they will, on satisfying other conditions, receive credit for studies previously taken. A certificate of excellence will be granted to worthy students of this course on examination, after not less than three years of study.

THE COURSES OF STUDY

I. COLLEGIATE COURSE

PIANO

Applicants for admission will be expected to play music of the grade of Mozart's *Sonata in D major No.* 3, Peters Edition; Loeschhorn, *Op.* 52 and *Op.* 66; Bach, *Little Preludes.*

FIRST YEAR

Heller, *Op.* 46 and 45; Czerny, *Studies in Velocity;* Jensen, *Op.* 32; Bach, *Inventions* and *English Suites.*

SECOND YEAR

Bach, *Well-Tempered Clavichord;* Kullak, *Octave School,* Books I and II; Cramer, *Studies;* Czerny, *Fingerfertigkeit;* Marmontel, *Mecanismé.*

THIRD YEAR

Tausig, *Studies;* Kullak, Book III; *Gradus ad Parnassum,* 1st half; Czerny, *Toccata;* Chopin, *Preludes.*

FOURTH YEAR

Moscheles, *Op.* 70; *Gradus ad Parnassum,* 2nd half; Chopin, *Etudes.*

It is not supposed that a rigid course can be given which will meet the requirements of all students, but the foregoing outline represents, in a general way, the character of each year's technical work. Studies especially are named, because they indicate grade and character of requirements more clearly than can be

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done otherwise. On the other hand, these studies are supplemented by ample selections from classic and modern composers, for the interpretative qualities in public performance.

Upon graduation students will be expected to play acceptably in recital selections of the grade of *Chromatic Fantasie and Fugue* by Bach, *Sonata, Op.* 90, by Beethoven, *Concerto in G minor* (one movement) by Mendelssohn, etc.

ORGAN

No previous knowledge of organ playing is required. But the student must be well grounded in piano playing, must possess a correct technique, and be able to read plain four-part music.

The course of study is continuous, beginning with Stainer's *Organ School* or Whiting's *First Six Months on the Organ*, and following with the larger works of Rink and Best, supplemented by special studies by Thayer, Buck, Ritter, Schneider, Volckmar, and others. Selections from Bach's organ works, Mendelssohn's sonatas and the compositions of modern composers are used.

Careful training is given in playing church music and voluntaries, the use of stops, and the mechanism of the instrument.

VOICE

The student must be able to read simple music and must have had an amount of training equal to the first half of Concone's *Fifty Lessons*, with the usual technical study for the same period.

First Year: Tone placing, breathing, and phrasing; ballad singing and the sosenuto style; technical and other studies of the grade of Bonaldi's *Six Vocalises;* Sieber's *Vocalises;* Marchesi's *Exercises, Op.* 21, Book 1.

Second Year: Concone's *Fifteen Vocalises;* Schubert's *Manual of Vocal Technique;* Marchesi's *Vocalises, Op.* 21, Book II; German and French songs, and easy oratorio and operatic arias and recitatives.

Third Year: Schubert's *Special Studies;* Bordogni's *Bravura Studies*, and operatic and oratorio selections.

Fourth Year: Studies in bravura by Lamperti and Bordogni, Cadenzas and larger forms of execution.

On graduation the student will be expected to sing acceptably in recital, selections (according to voice and school) from such songs and arias as: "He Was Despised," "Angels Ever Bright

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and Fair," "I Know That My Redeemer Liveth," and "Thou Shalt Break Them," by Handel; "With Verdure Clad," "Rolling in Foaming Billows," and "In Native Worth," by Haydn; "If With All Your Hearts," " It is Enough," and "O Rest in the Lord," by Mendelssohn; "Infelice," by Verdi; "Roberto, tu che Adoro," by Meyerbeer; "Una Voce," and "Pro Peccatis," by Rossini.

VIOLIN

First Year: Methods—Hermann and Schubert, *Scale Studies. Etudes* by Kayser, Hofmann and Wohlfahrt. Easy melodious solos and duets.

Second Year: Methods—Hermann, *Violin School, Part II*, and Ries, *Violin School, Part II. Etudes* by Kayser, Mazas, Eberhardt. Solos and duets.

Third Year: Schradieck, *School of Violin Technic. Etudes* by Mazas, Dont, Kreutzer and Fiorillo. Concertos by Viotti, Rhode and Kreutzer. Italian sonatas and other solo pieces.

Theoretical Studies

MUSICAL THEORY

A one year course, twice a week, in the general theory of music, including notation, scale construction, intervals, distinctions of rhythm, musical terminology, etc., combined with a practical study of sight reading and choral singing.

This course is especially recommended to all students, whether of instrumental or vocal music, as furnishing a substantial foundation for all other work; it will also be found useful for those who contemplate teaching in either public or private schools.

HARMONY AND COUNTERPOINT

The requirements for admission to the course in harmony are: a knowledge of musical notation, a correct ear, ability to read simple melodies at sight, and to play a simple hymn-tune.

First Year: Elementary Harmony. Study of the nature, individuality, and unity of melody, harmony and rhythm as elements of music expression. Development of ability to recognize in aural analysis all the diatonic harmonies in both major and minor modes, and to correctly employ the same in the harmoniza-

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tion of melodies, both original and given. Non-harmonic elements.

Second Year: Advanced Harmony. Four-part writing. Chromatic harmonies and compound chords in major and minor modes. Modulation. Detailed harmonic analysis of Schumann, Mendelssohn, etc.

Third Year: Simple Counterpoint, strict and free. Double Counterpoint, canon and fugue.

HISTORY OF MUSIC

A course of lectures twice a week, extending throughout the year. In the first semester the lectures give a general survey of music from before the Christian era down to the eighteenth century. The second semester is devoted to the eighteenth and nineteenth centuries.

MUSICAL COMPOSITION

A year course, twice a week. Two years of harmony, or an equivalent, are required as preparation.

PUBLIC SCHOOL MUSIC

General Course for Grade and High School Teachers

This course is designed for teachers who expect to combine the teaching of other branches with the subject of music, in grade and high schools. The class will meet twice a week throughout the year. The work consists of a study of the technical points to be presented in the school and the practice of songs suitable for school use. This course will be of value to those who expect to teach in the public schools or who wish to conduct high school choruses, and will include systematic training in conducting. The course is open to University students without an additional fee. Persons not in the University will be admitted on the payment of the incidental fee of $10.

Course for Supervisors

This course is designed for those who wish to fit themselves for the special work of supervisors of music in the public schools. It contemplates two years' work, but may be completed in one year by those who have had sufficient previous musical training. A certificate is granted on the satisfactory

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completion of the following subjects: (1) Methods, (2) Practice-teaching, (3) Conducting, (4) Harmony, (5) History of Music, (6) Sight-singing and ear-training, (7) Musical Appreciation, (8) Masterpieces of Music.

The class in methods meets three times a week for the consideration of the following work: rote songs and their application to school work; the elements of music as presented in the grades; study of the child voice; the supervisor's problems and how to meet them; study and interpretation of school songs; outlining of material; music in the high school.

This class involves a special fee. See under Tuition.

II. ACADEMIC COURSE

There are no requirements for entrance. Students are received and graded according to ability and amount of previous study. This course in all departments leads up to and overlaps the collegiate course. Students after reaching the proper stage of preparation may be transferred to the collegiate course, or may remain in the academic course, the work of the last three years being identical in both courses. But no certificate of excellence will be issued to any student who is not thoroughly fitted to enter the third year of the collegiate course.

GUITAR, BANJO, AND MANDOLIN

In response to the demand growing out of the popularity of these attractive instruments, the School of Music provides ample and excellent opportunities for their study. Special attention is given to expression, technique, and proper fingering. Correct methods leading to the highest efficiency are employed.

Text-books for Guitar: Carcassi, Sor, Ferranti, Holland, and Langley.

Text-books for Banjo: Dobson, Stewart, Henning, and others.

Text-books for Mandolin: Wm. C. Stahl, *Books I, II, III; Progressive Studies* by Lansing, Munier, Branzoli, supplemented by solo selections from the best writers for this instrument.

ORCHESTRA

The University orchestra is composed of about forty of the students of the University. The purpose of the organization is

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the study of the larger classical forms. It is open to all students who have sufficient knowledge of any orchestral instruments to pursue the work profitably. After two semesters' connection with the orchestra a student may receive a credit of one unit-hour for each of the two following semesters.

BAND

A military band has been organized, open to all students. Two rehearsals are held each week. Freshmen and sophomores belonging to the band receive credit for military drill.

CHORAL UNION

The Choral Union is an organization of students of the University and citizens of Madison for the purpose of studying and adequately presenting in public preformance the oratorios and larger choral works of standard composers. Very successful performances of Handel's *Messiah* and *Judas Maccabaeus*, Haydn's *Creation*, and Mendelssohn's *Elijah* and *St. Paul* have been given, and other works of similar magnitude will follow. Occasional concerts of part-songs and glees are given.

Applicants for membership must be able to read simple music at sight. The rehearsals are held weekly from October to May. The annual membership fee is one dollar. University credit (one unit-hour for the whole year) is allowed for students who can pass the required tests.

RECITALS AND CONCERTS

Student recitals, free to all students and open to all others by invitation, are held at frequent intervals during the collegiate year. Recitals and concerts by eminent artists are given from time to time at a low price to students of the School of Music.

An incidental fee of fifty cents each semester (payable at the time of registration) is charged all students of the School of Music, for the purpose of establishing a fund, which, in addition to single admission tickets, will defray the expenses of a series of six Artists' Recitals (three each semester). The payment of this fee entitles students to attend not only each recital but also the analytical and explanatory lecture given by the director before each recital.

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TUITION

The school year is divided into two semesters of approximately eighteen weeks each, but the tuition for musical instruction may be paid by the half-semester, if desired.

Half-Semester of Nine Weeks

Two Lessons a Week

PIANO

	½-hour lessons	¾-hour lessons	Hour lessons
Mr. Hall	$25.00	$37.50	
Miss Bird	$18.00	27.00	36.00
Miss Regan	18.00	27.00	36.00
Mrs. Sandberg	18.00	27.00	36.00
Miss Fowler	15.00	22.50	30.00
Miss Buehler	12.00	18.00	24.00

VOICE

Miss l'Hommedieu	$25.00		
Miss Foresman	20.00	$27.00	
Mr. Bredin	16.00	24.00	

ORGAN

Mr. Bredin	$15.00	$22.00	$30.00

MANDOLIN, GUITAR, BANJO, HARP

Mrs. Brand, Mr. Bach, Mrs. Anderson	$ 9.00	$13.50	$18.00

One Lesson a Week

PIANO

Mr. Hall		$13.50	$20.00
Miss Bird	10.00	15.00	$20.00
Miss Regan	10.00	15.00	20.00
Mrs. Sandberg	10.00	15.00	20.00
Miss Fowler	8.00	12.00	16.00
Miss Buehler	7.00	10.50	14.00

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VOICE

	½-hour lessons	¾-hour lessons	Hour lessons
Miss l'Hommedieu	$13.50		
Miss Foresman	10.00	$15.00	
Mr. Bredin	9.00	13.50	

ORGAN

Mr. Bredin	$ 8.00	$12.00	$16.00

VIOLIN

Mr. Jaffé	$13.50

MANDOLIN, GUITAR, BANJO, HARP

Mrs. Brand, Mr. Bach, Mrs. Anderson	$ 4.50	$ 6.75	$ 9.00

OTHER EXPENSES

Sight-Singing classes, two hour-lessons each week, per semester	$5.00
Piano practice, each hour daily, per semester	3.00
Organ practice, each hour daily, per half-semester	4.50
Artists' Recital fee, per semester	.50
Diploma fee	5.00

PUBLIC SCHOOL MUSIC

Public School Methods, per semester	$25.00
Public School certificate	1.00

The fee for the course in public school methods includes the fee for sight-singing and ear-training, which is required work in this course.

Theoretical studies are taken in the University classes, and those who are not otherwise connected with the University pay the incidental fee of the College of Letters and Science, which is $10.00 a semester. This fee, however, is not required of those taking only individual lessons in singing, or on some instrument.

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GENERAL INFORMATION

Students are not received for less than a half-semester.

All tuition fees must be paid in advance, by the half-semester or semester.

No student is entitled to lessons until tuition has been paid.

No deduction can be made for absence from lessons, except for long continued illness, in which case the School of Music will share the loss equally with the student.

No student is expected to take part in any public entertainment without the consent of his teacher and the Director.

Students who, by reason of deficient musical ability, neglect of study, or any other valid reason, fail to make satisfactory progress, may be dropped from the classes.

The School of Music calendar is the same as that of the University.

Pianos may be rented from local dealers at from three to six dollars a month.

Students may enter at any time.

The office of the Director in Assembly Hall at the University will be open for several days before the opening of each half-semester for the reception of pupils and assignment of lessons. After the opening of the University the Director may be found at Assembly Hall, from 10 to 11, on Monday and Wednesday, and from 3 to 4 on Tuesday and Thursday.

The regular office hours of the secretaries during the college year are: at Assembly Hall, 10 to 12 A. M., and 2 to 4 P. M.; at the Kroncke Building, 10 to 11 A. M. and 4 to 5 P. M., daily except Saturday.

For further information, address

ROSSETTER G. COLE, Director, or
MISS BESSIE G. BRAND, Secretary,
Madison, Wis.

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THE WASHBURN OBSERVATORY

GEORGE C. COMSTOCK, Director. Professor of Astronomy.

The Washburn Observatory was established in the year 1878 through the munificence of the late Gov. Cadwallader C. Washburn. Although its obligations and opportunities as a branch of a teaching university have not been ignored, the energies of its staff from the beginning have been directed mainly to astronomical research. Among the lines of research that have been cultivated may be specified the measurement of the positions and motions of the heavenly bodies, the discovery and measurement of double stars, the investigation of variable stars, the study of changes of latitude and the amount and character of the atmospheric refraction, the determination of the amount of the aberration of light, problems of stellar color, proper motions of faint stars, and a systematic investigation of the parallaxes of all accessible stars which have large proper motions.

The principal instruments of the observatory are:

An equatorially mounted telescope of 15½ inches aperature. constructed by Alvan Clark & Sons, and provided with graduated circles, driving clock, a filar micrometer, double image micrometer by Steinheil, a spectroscope, astro-photometer, and a very complete set of eyepieces. A meridian circle, by A. Repsold & Sons, of Hamburg, with collimators, transit micrometer, and the usual accessories of such an instrument. The objective of the instrument was made by the Clarks, and has an aperture of 4.8 inches and a focal length of 58 inches. The circle is graduated to 2 minutes of arc. For several years this instrument has been employed for an extensive series of determinations of stellar parallax. There are also a sidereal clock by Höhwü, of Amsterdam, two mean time clocks by Howard, of Boston, all excellent time-pieces, and a chronograph, by Fauth & Co., of Washington.

In the Students' Observatory are mounted a six-inch equatorial telescope, by Alvan Clark & Sons, and a transit instrument of the broken telescope type, by Bamberg. These instruments,

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while primarily intended for instruction, are well adapted to and are employed for certain classes of original work. In particular, the equatorial telescope has been provided with reflecting prisms (Loewy), and employed as one of the principal instruments of the Observatory in an investigation of the refraction and the constant of aberration; and the Bamberg instrument is used for latitude determinations by the Talcott method and for the time service of the Observatory. The Observatory also possesses a considerable number of subsidiary instruments, such as portable telescopes, spectroscopes, photometers, chronometers, sextants, an engineer's transit, an altazimuth, a universal instrument of the German type, a personal equation machine, a spherometer caliper, seismoscopes, photographic apparatus, and a complete set of meteorological instruments.

The Woodman Astronomical Library, established in connection with the Observatory, and supported from the income of a fund given by the late Cyrus Woodman, Esq., possesses a large and valuable collection of works upon astronomy and kindred subjects.

By provision of law the results of important investigations conducted at the Washburn Observatory are published by the State, and under this provision twelve volumes, representing the more important work done at the Observatory, have been issued.

Students of sufficient technical attainments are admitted to the Observatory and take part in the investigations in progress. Meritorious original work of such students may be included in the Publications of the Observatory, or in the Bulletins of the University. For the courses of instruction in astronomy see Index, under Astronomy.

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UNIVERSITY EXTENSION DIVISION

LOUIS E. REBER, Director.

WILLIAM H. LIGHTY, Secretary of Correspondence-Study Department.

FRANK A. HUTCHINS, Secretary of Debating and Public Discussion Department.

THE ORGANIZATION

The work of the University Extension Division is divided into four departments as follows:

I. Correspondence-Study
II. Instruction by Lectures
III. Debating and Public Discussion
IV. General Information and Welfare

Object

The object of this University in carrying on extension work is to serve the citizens of the commonwealth who are unable to attend established educational institutions, to stimulate and guide them in the pursuit of a higher and more effective education, to enable them to achieve more nearly the best things in life of which they are capable—in short, to build up an extra-mural university, which shall embrace the whole state and which shall have live, active members in every community in intimate connection with the mother institution.

The constant aim of the Regents has been to make the University the center of every movement which concerns the interests of the state—to give every man a chance to get the highest education possible at the smallest practical cost—to bring the University and the home in close touch.

Historical Development

Step by step the University has broadened its field. In 1866 women were admitted. In 1885 Farmers' Institutes were established in connection with its College of Agriculture. A little later a Short Course in Agriculture was provided. In 1898 the

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Summer Session was opened for the admission of those who had not time or means to enter as resident students for the long term. To this was added, in 1900, the Summer School for Artisans and Apprentices. The culminating achievement is the establishment of the University Extension Division.

I. CORRESPONDENCE-STUDY DEPARTMENT

PURPOSE

There exists in every community a considerable class of persons who are unable to adjust themselves to the formal system of education. Such persons have a claim upon the state for educational opportunities outside the formal regime. The Correspondence-Study Department serves the needs of men and women in this situation and offers effective individual instruction, which may be pursued in accordance with the requirements of each student in his own home.

Teaching by Mail

The possibility of teaching by correspondence has been demonstrated by practical experiment. While such instruction lacks some of the advantages which resident study gives, it has compensating advantages of its own. In correspondence instruction, the teaching is personal and individual. Every student studies and recites the whole lesson, comes in contact with the teacher as an individual, not as a member of a large class. Correspondence-study employs the spare time of the student, and gives him an interest beside his daily work. It can be done at home and thereby brings into the home a new and enlarging influence. Correspondence work, moreover, throws a man upon his own resources and makes him self-reliant and self-determining.

Plan and Scope

The University of Wisconsin provides, through the Correspondence-Study Department, non-resident or home-study instruction as follows:

I. Certain regular University studies which may, under approved conditions, be taken for credit toward a degree.

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II. Advanced courses designed to help persons, graduates and others, in professional or practical life to keep in touch with certain advancing conditions of science and knowledge.

III. High school and preparatory studies for those for whom the conventional institutions are not available or practicable.

IV. Vocational courses which supply knowledge and training that have a direct bearing upon advancement and efficiency in a given occupation.

V. Elementary and grammar school studies for those who require such instruction for practical purposes.

GENERAL BENEFITS. Persons who are benefited by Correspondence-Study may be divided into two main classes: 1st, those who have the taste, ability, and inclination to continue their education along such lines as will enrich their lives with a deeper culture, or enhance their opportunities or abilities within their chosen vocations or professions, or fit them for larger positions and services; 2nd, that great class of wage-earners who cannot leave their employment to acquire training directed towards the greater proficiency and skill so greatly to be desired.

The first class may be roughly divided into (1) those who seek the services of the Correspondence-Study Department in keeping abreast of the times with reference to the advances in knowledge that relate to their profession or business, or it may be purely for purposes of general culture; (2) those who wish to acquire units of credit towards a University degree and (3) those who require preparation for entrance to the University.

The second class includes (1) those whom the necessity of earning a livelihood has taken from school before acquiring an elementary education; (2) those who have had the benefits of more or less liberal educational opportunities, but have received no training specially adapted to fit them for their chosen vocations; and (3) those who desire to change vocations and prepare themselves for employment more nearly adapted to their taste and abilities.

The recognized need for more wide-spread training for people who work demands that some form of education be provided for their benefit equivalent to that which may be gained in the schools and universities. To this end it is necessary not only to carry the educational opportunity to them wherever they may

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be, but frequently to arouse and stimulate their interest by demonstrating to them the value of increased fitness. Realizing the importance of such work for the future well-being of the people and for the prosperity of the country, as well as for the maintenance of democratic institutions, the Extension Division proposes to establish district centers through which the entire population of the state will be reached by University benefits.

INDUSTRIAL EDUCATION. The employes of business firms may be greatly benefited by training especially adapted to their work. Where a number of them are engaged in the same or similar studies, classes are formed and met by teachers at frequent intervals.

The method adopted for bringing the subject of Correspondence-study work to employes is essentially as follows: The interest of the employer is first enlisted, after which the employee may be approached under favorable conditions. The next step brings the men together to hear of the opportunity University Extension opens to them, how readily they may avail themselves of it and the benefits to be derived. Every man who registers for a course of studies is met at once by a teacher who learns in a personal interview the exact grade of work for which he is prepared. If large numbers are enrolled, they are grouped in classes of twenty, and in addition to written lessons, receive personal instruction from a teacher who meets them regularly. To a certain extent the classes are graded and where necessary, individual teaching is given until the student can take his place in a class.

The instructor engaged in this work gives his entire time to it. He is as familiar with the employee's labor as he is with the lesson text, and, therefore, can help the men to make practical applications of lesson to work.

LABORATORY WORK. Provision is made in connection with many correspondence courses, both in the advanced grade and in the vocational studies, by which laboratory practice forms a part of the instruction. In some courses laboratory outfits are sent to the student from the University to be set up in his own home. In other cases special arrangements are made for short periods of laboratory practice at Madison. In some studies local branch laboratories will be established where local students may receive special instruction as the correspondence course proceeds.

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THE MOTIVE. This system of instruction is designed for persons carrying on their own education. It is open to non-residents as well as to residents of the State of Wisconsin.

The present and contemplated work of the Correspondence-Study Department is designed to co-operate with and supplement existing educational agencies. By thus supplementing existing agencies there is established a vastly larger and more democratic instrument for extending the benefits of general and specialized education.

The Method and System

PROCEDURE. The student who wishes to undertake correspondence-study, should first select such course or courses as he may desire to take, and send for application blank. He should fill out the blank with information called for, and return it with required fee to the office of the Extension Division. The necessary text-books, outfit, etc., may also be purchased through the Extension Division if the student so desires.

THE INSTRUCTION. Upon receipt of application and fee, the first two lessons will be sent, with instructions for study, and methods of preparation, and directions for returning lesson sheets and reports. Each lesson will be returned to the student with such corrections, explanations, and suggestions as may be needed. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that no student will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

BY WHOM PREPARED. These courses are prepared by the members of the University faculty, and each represents a definite amount of work corresponding to an equivalence of work done in residence at the University, or in the standardized schools of our educational system.

THE UNIT COURSE. The unit course is divided, where practicable, into forty weekly assignments. Such a course represents at least an amount of work equal to that done in residence at the University in a full five recitation-hour study per week for one semester or half year. It is assumed that this work may be done by the average student in forty weeks on a minimum leisure for study of one hour per day, six days in the week. It is, however, the student's privilege to pursue his studies as rapidly as he is able.

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THE LESSON. The unit course is divided into assignments. In some courses this assignment may call for but a single lesson report, but in other courses the assignment is divided into four, five, or more lessons. In all cases the assignment represents an average week's work and not an evening's work, as at school.

PERMANENCE. The department endeavors to make its work thorough and permanent, and the various courses have been arranged in co-ordination with the regular residence work, the short courses, and the summer session.

EXAMINATIONS. Examinations are optional with the student, but are required where credits are sought. These examinations must be taken at the University, or under conditions approved by the University.

REGULATIONS. 1. Students may begin correspondence courses at any time during the year.

2. For admission to the Correspondence-Study Department no preliminary examination is required. The student is required to fill out an application blank, giving such information as may be helpful in adapting the instruction to the personal needs of each student.

3. Students who undertake Correspondence-Study work for University credit must state this fact in advance and comply with all the requirements of the University.

4. For the benefit of the department it is desired that the applicant state fully the purpose he has in view in taking the work, and also in detail such educational advantages, training, or experience as he may have had. The department endeavors to meet the needs of the individual student by advice and suggestion, as well as by formal instruction, but whenever it finds that the course elected is not for the best interests of the student, it reserves the right to reject the application, or to advise change or discontinuance.

5. Correspondence students will be expected to complete a unit course within twelve months, two courses within fifteen months, three courses within eighteen months from date of registration.

6. During an instructor's vacation, a substitute will be provided to carry on such course or courses, if possible.

7. No fee is refunded because of a student's inability to enter upon or pursue a course for which he has once registered. If

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an application for instruction is rejected the fee is returned.

8. The fee for a full unit course of forty assignments is only twenty dollars. When the student registers simultaneously for more than one unit course he is eligible to a discount of twenty-five per cent upon the amount of the fees in excess of twenty dollars. These fees are deliberately put upon the lowest operating basis. It is individual instruction of the highest order, given under the most trust-worthy conditions. The motive is public service, and profit is entirely eliminated.

Those who care to analyze the cost will bear in mind the fact that the correspondence student is usually engaged in a gainful occupation or profession, whereas the residence student temporarily suspends his earning power. The correspondence student may also be said to be turning his leisure time into economic values by this method. These and many other factors contribute toward establishing this as an inexpensive system of achieving an education.

University Credit

1. Persons who have had the required preparation for admission to the University, will, upon satisfactory completion of a correspondence-study course designed for credit, be awarded a certificate of credit in the University.

2. The maximum credit granted for work done by correspondence-study, however, may not exceed one-half the unit hours required for graduation.

3. At the completion of each correspondence-study course for University credit, the student shall pass an examination held under the direction of the instructor giving such course, or by some one designated by the University for that purpose.

4. Work taken for credit may not be done by any student while in attendance at any institution of learning.

5. In special cases credit may be allowed for correspondence-study courses of preparatory grade to satisfy partial entrance requirements to the University.

6. Credit to an amount not exceeding one-fourth of the unit hours required for graduation may be given at the University of Wisconsin to students of such other correspondence-schools or departments as may be designated by the University of Wisconsin. It is, however, required that such credits shall be sub-

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ject to the same provisions as are made in the University of Wisconsin, and subject to the action of the accredited schools committee, or the advanced standing committee, as the case may require.

7. Credit records of Correspondence-Study work are filed in the University Extension office until the student has satisfactorily completed one year of study in residence. When all the requirements are satisfied, the Correspondence-Study records may be transferred to the Registrar's office and applied toward graduation.

8. All courses offered by the Correspondence-Study Department, whether taken for University credit or not, are on a uniform basis in reference to the amount of work covered. Courses which are satisfactorily completed have, therefore, a definite value, and all students who successfully complete such courses, will be awarded certificates of the grade in which the work is taken.

CORRESPONDENCE-STUDY COURSES

Philosophy

DR. STARCH AND MR. OTTO

Course 1. General Psychology.
Course 10. Ethics.

Education

PROFESSORS ELLIOTT AND O'SHEA

Course 1. Principles of Teaching.
Course 2. The Development of Childhood and Youth.
Course 3. Educational Psychology.
Course 6. History of Education.
Course 7. American Educational History.
Course 8. Administration and Supervision of Education.

History

PROFESSORS DENNIS, FISH, MUNRO, TURNER, AND ASSISTANT PROFESSOR CHASE

Course 1. United States History.
Course 2. American History 1760–1830.

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Course 6. English History.
Course 9. Modern European History, Part A.
Course 10. Modern European History, Part B.
Course 12. Medieval History.
Course 20. Ancient History.

Political Economy

PROFESSORS COMMONS, ELY, ROSS, SCOTT, ASSOCIATE PROFESSOR TAYLOR, DR. HESS AND MR. LEISERSON

Course 1. Elements of Political Economy.
Course 2. The Labor Movement.
Course 3. Transportation.
Course 4. Socialism.
Course 6. Agricultural Economics.
Course 7. Commercial Geography.
Course 10. Elements of Money and Banking.
Course 11. Practical Banking.
Course 15. Social Psychology.
Course 16. General Sociology.
Course 17. Practical Sociology.

Business Administration

PROFESSOR GILMAN

Course 51. Business Forms, Credit Instruments, and Funding Operations.
Course 52. Business Correspondence.
Course 53. Business Organization.
Course 54. Bookkeeping.
Course 55. Commercial Accounting.
Course 56. Cost of Production and Factory Accounting.
Course 57. Financial Accounting.
Course 59. Advertising.
Course 60. Salesmanship.
Course 61. Markets and Buying.
Course 62. Credits and Collections.
Course 63. Financial Institutions.
Course 65. General Administration.

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Political Science

DR. M'CONOCHIE

Course 1. Elementary Political Science.
- (a) Government, national, state, and municipal; special attention to the judiciary.
- (b) Government, national, state, and municipal; special attention to the executive.

Course 2. The Law and Politics of the Press.
- (a) The Law of the Press.
- (b) The Politics of the Press.

Course 3. Legislatures and Political Parties.
- (a) Organization and Procedure of American Legislative bodies.
- (b) Political Parties and Campaigns.

Course 4. American Diplomacy and World Politics.
- (a) The History and Principles of American Diplomacy with the present organization and activities of the Department of State.
- (b) Important living questions in International Politics.

Course 5. Constitutional and International Law.
- (a) Constitutional Law; History, Interpretation, Comparison.
- (b) The Law of Nations; History, Progress, Present aspects.

Course 6. Civic Progress and Public Service.
- (a) City Government; Present-day Civic Activities and Progress.
- (b) Officers and Employees: Their Relations to Government and People.

Greek

PROFESSOR SMITH AND DR. PITMAN

Course 1. Elementary Greek—(summer session).
Course 2. Xenophon's Anabasis.
Course 3. Homer's Iliad I-III or Odyssey VI-VIII.
Course 4. New Testament Greek.

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Latin

PROFESSOR SLAUGHTER, ASSOCIATE PROFESSOR SHOWERMAN AND DR. PITMAN

Course 1. Elementary Latin.
Course 2. Caesar.
Course 3. Cicero.
Course 4. Virgil: Aeneid.
Course 5. Elementary Prose Composition.
Course 6. Advanced Prose Composition.
Course 7. Livy: Books 1 and XXI.
Course 10. Cicero: De Senectute.
Course 12. Terence: Phormio and Andria.
Course 14. Horace: Odes.
Course 15. Horace: Satires and Epistles.
Course 16. Catullus.
Course 17. Roman Mythology.
Course 20. Cicero: Letters and Orations.
Other Advanced Reading Courses in Authors commonly read in colleges.

French

MR. GALLAND

Course 1. Beginners' French.
Course 2. Elementary French.
Course 3. Intermediate French. A.
Course 4. Intermediate French. B.
Course 5. Technical French.
Course 10. General Survey of French Literature.

Italian

MR. GALLAND

Course 1. Elements of Italian.
Course 2. Reading of Italian.

Spanish

MR. GALLAND

Course 1. Beginners' Spanish.
Course 2. Elementary Spanish.
Course 3. Intermediate Spanish.

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German

DR. PROKOSCH AND DR. REINHARD

Course 1. Elementary German, Part A.
Course 2. Elementary German, Part B.
Course 3. Intermediate German, Part A.
Course 4. Intermediate German, Part B.
Course 6. Scientific German.
Course 7. Commercial German.
Course 8. Critical German Prose.
Course 9. Grammar Review.
Course 12. German Composition.
Course 19. Elementary Teachers' Course.
Course 20. Advanced Teachers' Course.
Course 25. Modern German Dramat'sts.
Course 26. Modern German Novelists.
Course 22. Schiller.
Course 21. Goethe.
Course 29. Goethe's Faust.
Course 30. History of German Literature.
Course 31. History of the German Language.

Studies in Lessing, Heine, Uhland, and Modern German Poetry are also available. Courses in Gothic, Old High German, Middle High German, and Old Saxon will also be arranged.

English

ASSISTANT PROFESSORS BEATTY, BLEYER, DICKINSON, LYMAN, AND DR. PITMAN

Course 1. Elementary English.
Course 2. English Grammar.
Course 3. English Composition. A.
Course 4. The Teaching of English.
Course 5. English Composition. B.
Course 6. English Composition. C.
Course 7. Intermediate English Composition.
Course 10. The Composition of Public Address.
Course 17. Introductory Course to Shakspere.
Course 18. The Poetry of Tennyson.
Course 19. The Poetry of Browning.

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Course 31. The New England Poets.
Course 32. Hawthorne and Poe.
Course 51. History of English Literature.
Course 52. History of American Literature.

Mathematics

MR. CRAIGO

Course 1. Elementary Algebra, Part A.
Course 2. Elementary Algebra, Part B.
Course 3. Plane Geometry.
Course 4. Solid Geometry.
Course 5. Plane Trigonometry.
Course 6. University Algebra.
Course 7. Analytic Geometry.
Course 8. Differential Calculus.
Course 9. Integral Calculus.
Course 10. Applied Mathematics. (For Artisans.)
Course 11. Applied Arithmetic.

Chemistry

PROFESSOR KAHLENBERG AND MR. M'DANIEL

Course 1. Elementary Chemistry.
Course 2. Qualitative Analysis.

Geology and Mineralogy

PROFESSORS LEITH, WINCHELL; ASSISTANT PROFESSOR MARTIN; MR. COX, MR. STEIDTMAN, AND MR. WILLIAMS

Course 1. Mineralogy.
Course 2. Economic Geology.
Course 3. Physical Geography.

Botany

ASSISTANT PROFESSOR DENNISTON

Course 1. Morphology and Classification of Flowering Plants.
Course 2. General Morphology of Algae.
Course 3. General Morphology of Fungi.
Course 4. General Morphology of the Mosses and Ferns.
Course 5. Plant Histology.
Course 6. Elementary Plant Physiology.
Course 7. Drugs and Food Products.
Course 8. Trees and Shrubs.

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Astronomy

DR. EATON

Course 1. Popular Astronomy.

Bacteriology and Hygiene

ASSOCIATE PROFESSOR FROST

Course 1. Principles of Elementary Bacteriology.
Course 2. Communicable Diseases.
Course 3. Household or Industrial Bacteriology.
Course 4. Public Health Problems.
Course 6. General Bacteriology.
Course 10. Infection and Immunity. (For Physicians.)

Music

Course 1. Public School Music.
Course 2. Appreciation of Music.

Home Economics

Course 1. Selection and Preparation of Foods.
Course 2. House Sanitation.
Course 3. House Decoration.

Highway Construction

MR. HOTCHKISS

Course 1. Highway Construction.

Mechanical Drawing

PROFESSOR PHILLIPS; ASSISTANT PROFESSOR MILLAR; AND MR. HAMMER

Course 1. Mechanical Drawing, Part A.
Course 2. Mechanical Drawing, Part B.
Course 3. Descriptive Geometry.
Course 4. Freehand Lettering.

Mechanical Engineering

PROFESSORS MACK, MAURER, PENCE, PHILLIPS, RICHTER; ASSOCIATE PROFESSOR THORKELSON; ASSISTANT PROFESSORS MILLAR, NORRIS; MR. HAMMER, MR. HUELS, MR. KEOWN, AND MR. SHEALY

Group 1. Machine Design Group.
Group 2. Steam Group.

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Group 3. Locomotive Engineering Group; and other groups.
Course 201. Practical Mathematics for Artisans.
Course 205. Mechanical Drawing.
Course 206. Elements of Mechanics.
Course 207. Strength of Materials.
Course 208. Mechanism.
Course 209. Machine Elements.
Course 210. Advanced Design.
Course 215. Heat.
Course 216. Boilers.
Course 217. Steam Engines.
Course 218. Valve Gears.
Course 219. Gas Engines and Gas Producers.
Course 220. Test Methods.
Course 221. Lubricants.
Course 222. Refrigeration.
Course 223. Heating and Ventilating.
Course 224. Power Plant Economics.
Course 225. Compressed air.
Course 226. Locomotive Maintenance.
Course 227. Air Brakes.
Course 228. Economics of Train Operation.
Course 229. Electric Machinery.
Course 230. Engine Running.
Course 231. Fuels.
Course 232. The Locomotive.
Course 233. Central Station Design.

Courses in Electrical Engineering

ASSISTANT PROFESSORS JANSKY, SHUSTER, AND MR. WICKENDEN

Course 301. Mathematics.
Course 305. Mechanical Drawing.
Course 306. Elements of Mechanics.
Course 307. Strength of Materials.
Course 308. Machine Design.
Course 309. Machine Elements.
Course 310. Magnetic and Electric Circuits.
Course 311. Dynamo Electric Machinery.
Course 312. Theory of Alternating Currents.
Course 313. Alternating Current Machinery.

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Course 314. Electric Lamps and Illumination.
Course 315. Theory of Heat.
Course 316. Central Electric Stations.
Course 317. Electric Wiring, Power Transmission and Distribution.
Course 318. Telephones, and Telephone Apparatus.
Course 319. Meters and Metering.
Course 320. Testing of Electrical Machinery.
Course 321. Electric Railways.
Course 322. Electric Batteries.

Commercial Law

PROFESSOR GILMAN

Course 1. Contracts.
Course 2. Agency.
Course 3. Sales.
Course 4. Negotiable Instruments (Commercial Paper).
Course 5. Personal Property.
Course 6. Insurance.
Course 7. Partnership.
Course 8. Corporations (Private Corporations).
Course 9. Real Estate.
Course 10. Probate Law.

Pharmacy

PROFESSORS KAHLENBERG, KREMERS; ASSISTANT PROFESSORS BRADLEY, DENNISTON, FISCHER; MR. DU MEZ, DR. GROVE, AND MR. M'DANIEL.

Course 1. Pharmacy, Part A and Part B.
Course 3. General Chemistry, Part A.
Course 5. Inorganic Preparations.
Course 12. Qualitative Analysis.
Course 10. Morphology and Classification of Flowering Plants.
Course 15. Plant Histology.
Course 30. Drug Assaying.
Course 35. Physiological Chemistry.
Course 40. Pharmaceutical Analysis.
Course 45. Microscopical Examination of Food Products.
Course 46. Microscopical Examination of Drugs.
Course 50. Pharmacology.
Course 51. Toxicology.

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II. INSTRUCTION BY LECTURES

PURPOSE

It must be borne in mind that University Extension work is primarily educational. It does not pretend to compete with lyceum or entertainment bureaus. Its work is of a higher character, in keeping with the ideals of the institution of which it is a part. The Extension Division counts it a greater service to the state to stimulate and encourage a hundred earnest learners, be they teachers, bankers, or mechanics, than merely to amuse a thousand listeners. The work is intended to appeal to all classes of society, and this it does in an extraordinary degree on account of its elastic system. This system consists of a universty lecture, or rather a series of lectures, each followed by a discussion; a syllabus planned by the lecturer; a study club; and essays and other written work for those who desire university credit. It is obvious that not everyone in any community will care to follow out this complete program. On the other hand, there will be few to whom the program does not offer something. Business men and mechanics may have time for the lectures only; while others who wish to develop the intellectual life in their homes will find time to do some outside reading and attend the meetings of study clubs.

Lectures at Public Expense

Where courses are arranged for by public school boards, it is possible, under the act of the Wisconsin legislature of 1901, to have them maintained at public expense. By another act, passed by the legislature in 1905, trustees of public libraries are permitted to give the use of the auditoriums in their buildings for public lectures.

In order to encourage the establishment of such courses of lectures the Extension Division offers to official boards desiring to inaugurate courses, one or two lectures free of cost beyond the actual traveling and other necessary expenses.

STUDY CLUBS.—The department of Instruction by Lectures is ready to assist study clubs in every possible way. From time to time, the Secretary will visit the different parts of the state and aid the local centers in organizing or perfecting the organization of such clubs. When organized, the Extension Di-

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vision will be of further assistance either through direct contact of some member of its staff with the class, or through supervision of the work of the class, or through a combination of both the foregoing methods.

UNIVERSITY CREDIT.—Where the work of the study club is of a character approved by the faculty of the University, a certificate will be awarded to the members passing a satisfactory examination, which will have a recognized value on the University records, and which will be credited accordingly, should the holder ever study at the University.

APPLICATIONS FOR LECTURES.—As a rule the members of the Extension staff are free to lecture only on the afternoons and evenings of the last two days of the week. This is especially the case for places at a considerable distance from Madison. It is therefore desirable that a first and second choice of lecturer, subject and date (or dates) be given. If a lecturer is desired on some other day of the week, the Extension Division will try to make satisfactory arrangements.

As soon as arrangements for the lecture are completed, the Extension Division will send to the local librarian a list of the books bearing upon the subject in order that as many as possible of those not already in the library may be procured before the lecture.

CIRCUITS.—If two neighboring communities, or two centers in the same community, engage the same lecturer for the same day or consecutive days, a circuit is established and the lecturer's expenses are divided between them. For example, a woman's club could arrange for a lecture in the afternoon and the school board of the same place could arrange for another in the evening.

TRAVELING LIBRARIES.—The University Extension Division has in its work the co-operation of the Wisconsin Free Library Commission. The Commission possesses several thousands of volumes which it sends in groups to the communities of the state that have no adequate library facilities. Requests for such libraries by University Extension centers will be gladly received by the Secretary, and will be met so far as resources of the Commission will permit. On some subjects it will not be possible to furnish groups for lack of material, and inquiry by correspondence before definite arrangements are made for lectures, is advised in case

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it is desired to use traveling library groups in connection with the lectures.

STUDY OUTLINES.—The Extension Division will undertake to supply study clubs with outlines of study, as far as is possible.

STEREOPTICONS.—For places in which a stereopticon is not available, arrangements can sometimes be made whereby one is furnished by the University, at the expense of the local center.

SYLLABI.—The members of the extension staff will draw up syllabi of their lectures which will be published by the University. To cover the expense of printing, a charge of a few cents will be made for single copies. Where twenty-five or more are ordered, the charges will be lower.

TEACHERS' CONVENTIONS AND INSTITUTES.—The Extension Division will provide speakers for these meetings as far as the regular work of the University will permit.

COMMENCEMENT ADDRESSES.—The University Extension Division can arrange for commencement addresses to be delivered by members of its staff. The charges will be arranged in each case with the speaker desired, through the Extension Division.

Expenses

LOCAL EXPENSES.—These include hall rent, printing, advertising, etc., and the lantern and operator, where the lecture is illustrated.

UNIVERSITY CHARGES.—(1) Lectures's Fee. The fee for a course, given by one lecturer, is $15 per lecture: i. e., for a course of three lectures, $45; for one of six lectures, $90. Most of the courses include six lectures. The fee for a single lecture is $20.

(2) The lecturer's traveling expenses and hotel bills, including sleeping car and meals when necessary. Where a lecturer delivers two or more lectures, in neighboring centers, these charges are divided among them.

EXPENSES OF STUDY CLUBS.—Where classes are conducted by a local instructor, with or without the coöperation of a member of the Extension staff, the fees for instruction must be determined by arrangement with him.

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LECTURE COURSES

Philosophy

Professor JOSEPH JASTROW. Illustrations of Psychological Principles (Six lectures); The Subconscious (Six lectures); Aspects of Social and Individual Psychology (Six lectures).

Professor F. C. SHARP. Problems of Moral Progress (Six lectures); Psychology (Four lectures).

Education

Professor M. V. O'SHEA. Applications of Psychology to Education and Life (Six lectures); Modern Education (Six lectures); Contemporary Educational Ideals (Six lectures).

Professor EDWARD C. ELLIOTT. The Evolution of the American School Building (Two lectures); Politics and American Education (One lecture); Industry and American Education (One lecture).

History

Secretary HENRY E. LEGLER. The Evolution of the Book (Six lectures); Phases of Wisconsin History (Six lectures, illustrated).

Dr. REUBEN GOLD THWAITES. The Jesuits of New France; The French Regime in the Old Northwest; Men and Manners in Old Colonial Days; George Rogers Clark (Illustrated); Daniel Boone; The Black Hawk War; The Story of Wisconsin's Boundaries; On the Study of Local History; Among the Pueblos of New Mexico (Illustrated); A Summer in Norway (Illustrated); In Ireland with a Kodak (Illustrated). All these may be given as single lectures.

Sociology

Professor E. A. Ross. Race and Society (Six lectures); The Psychic Life of Society (Six lectures); The Mind of the Mob (One lecture); The Near Future of American Society (One lecture); Modern Sin and Grading of Sinners (One lecture); Pessimism and the Way Out (One lecture); Education and Society (One lecture); Tunis, the Western Outpost of the Orient (One lecture, illustrated).

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Business Administration

Professor S. W. GILMAN. Organization, Accounting, Business Forms, Credit Instruments, Funding Instruments and Practical Problems (Six lectures); Business Problems (Six lectures).

Political Science

Professor P. S. REINSCH. Political Japan (One lecture); Reform Movements in China (One lecture); Asiatic Unity (One lecture); The Hague Conferences and Tribunal (One lecture); The Empire Republic of Brazil (One lecture).

Greek Life and Literature

Professor C. F. SMITH. Greek Life (Six lectures); Greek Literature (Six lectures). (All illustrated.)

Greek and Roman Civilization

Associate Professor GRANT SHOWERMAN. Greek Architecture (Six lectures); Greek Sculpture (Six lectures); Historic Sites in Greece (Six lectures); Life of the Ancient Greeks (Six lectures); Historic Sites in Italy (Six lectures); Ancient Rome and its Remains (Six lectures); The Life of the Ancient Romans (Six lectures); Masterpieces of Classical Literature (Six lectures); Modern Italy and its Life (Six lectures). (All illustrated.)

Scandinavian History and Literature

Professor JULIUS E. OLSON. Early Scandinavian History and Literature (Six lectures); Modern Norwegian Authors (Six lectures).

German Life and Literature

Professor A. R. HOHLFELD. Goethe: The Man and the Poet (Six lectures); The German Drama of the Nineteenth Century (Six lectures); Glimpses of Modern Germany (Three lectures).

Professor ERNST K. J. H. Voss. Die Pflichten und die Rechte der Deutsch-Amerikaner (One lecture); Die Freundschaft zwischen Goethe und Schiller, ein Weck und Mahnruf für

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uns Deutsch-Amerikaner (One lecture); Carl Schurz, ein Vorbild für alle Deutsch-Amerikaner (One lecture); Parzival (One, two, or three lectures); Volks mundart und Schriftsprache in ihrem Verhältnis zu einander (One lecture); Die deutsche Kommission der Königlich Preussischen Akademie der Wissenschaften in Berlin (One lecture); Tristen und Isolde (One lecture).

Assistant Professor EDWIN C. ROEDDER. German Life in Town and Country (Six lectures, partly illustrated); German Women of the Past, and their contributions to the Advancement of Civilization (Six lectures, partly illustrated); On the Paths of William Tell (One lecture, illustrated); The Nibelungenlied (One lecture, illustrated); A Trip through the Black Forest (One lecture, illustrated); The Heidelberg Castle (One lecture, illustrated); The Religion of the Ancient Germans (One lecture); All of the above lectures in either English or German, as desired.

Assistant Professor SCOTT HOLLAND GOODNIGHT. Bismarck: His Life and Work (One lecture); German Universities and Student Life (One lecture); Berlin and Vicinity (One lecture); The Rhine Region (Two lectures); Dresden and Saxon Switzerland (One lecture); Leipsig and Jena (One lecture); Munich and Nuremburg (One lecture); (All illustrated).

English Life and Literature

Professor J. C. FREEMAN. English Life and Literature (Six lectures); Shakspere (Six lectures); The great Epics of the World (Six lectures); American Life and Letters (Six lectures); Who Wrote Shakspere? (One lecture); Shakspere, the Gentleman (One lecture); English Sonnets and Sonnetteers (One lecture); Modern Education, Does it Pay? (One lecture); Beyond Sea (One lecture); The Netherlands and the Rhine (One lecture); A Summer in Great Britain (One lecture); Italian Days (One lecture); Wonderland (One lecture); Uncle Sam Abroad, or our Consular Service (One lecture); Our Diplomatic Service (One lecture).

Assistant Professor J. F. A. PYRE. American Writers and American Culture (Six lectures); Typical English Poems (Six lectures); Art and Life (Six lectures); Hamlet (One lecture);

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Robin Hood (One lecture); Wordsworth (One lecture, illustrated); Byron, (One lecture); Browning (One lecture); Kipling (One lecture); Lowell (One lecture).

Assistant Professor WILLARD G. BLEYER. The Life History of Words (Six lectures); Talk on Writing English (Six lectures); The Teaching of English (Six lectures).

Assistant Professor ROLLO LU VERNE LYMAN. The Art of Public Address (Four lectures); Oratory in American History (Four lectures); Rudyard Kipling, with readings (One lecture).

Assistant Professor T. H. DICKINSON. Present Day Tendencies in the Drama (Five lectures); English Drama in the Nineteenth Century (Four lectures).

Mrs. MARY AGNES LATHROP. Some of the Songs of Literature (Six lectures, with vocal illustrations).

The Physical Sciences

Professor LOUIS KAHLENBERG. Chemistry (Six lectures).

Professor EDWARD KREMERS. Pharmaceutical Chemistry (Single lectures or series).

DEAN H. L. RUSSELL. Microbes and Their Work (Six lectures); Man and Microbes (One lecture); Milk Supplies and Public Health (One lecture); Prevention and Treatment of Consumption (One lecture); Prevention and Treatment of Tuberculosis (One lecture); Water Supplies and Disease (One lecture); Insects and Disease (One lecture). (All illustrated.)

Associate Professor W. D. FROST. Communicable Diseases: Their Cause and Prevention (Six lectures).

Mr. GEORGE WAGNER. Zoology (Six lectures, illustrated).

Assistant Professor LAWRENCE MARTIN. Geographical Development of Natural Scenery. (One lecture, or in series of six lectures, illustrated); The Inside Passage to Alaska (One lecture, illustrated); Alaskan Glaciers (One lecture, illustrated); Earthquakes and Shore Lines in Alaska (One lecture, illustrated); Alaska and Its Resources (One lecture, illustrated); Life of Alaskan Natives (One lecture, with exhibition of clothing, weapons, ornaments, basket-work, etc.).

Engineering

Associate Professor H. J. B. THORKELSON. Boilers (One lecture); Compressed Air Machinery (One lecture). (Both illustrated.)

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Professor C. F. BURGESS. The Electric Furnace (One lecture).

Lives of Famous Engineers.—Thomas Telford, by Dean F. E. TURNEAURE; George Stepheson, by Associate Professor H. J. B. THORKELSON; John Ericsson, by Professor J. G. D. MACK; George H. Corliss, by Professor A. W. RICHTER; Joseph Henry, ————————; Sir William Siemens, by Professor C. F. BURGESS. (All single lectures, illustrated.)

Horticulture and Landscape Gardening

Professor EMIL P. SANDSTEN. Laying Out and Planning of Home Grounds (One lecture, illustrated); How to Plant and Care for Shrubs and Shade Trees (One lecture, illustrated); Growing Fruits and Vegetables for Home Use (One lecture).

Forestry

State Forester E. M. GRIFFITH. Practical Forestry in Wisconsin (One lecture, illustrated).

Physical Training

Professor J. C. ELSOM. Physical Training (Six lectures); The German System of Gymnastics (One lecture, illustrated).

Assistant Professor E. D. ANGELL. The Educational Value of Play; The Significance of the Playground; Play in the Schoolroom; The History and Development of Physical Education. (All single lectures, illustrated.)

Assistant Professor ABBY SHAW MAYHEW. Physical Training (Four lectures).

Geography and Travel

Professor J. C. ELSOM. Among the Rockies (One lecture, illustrated); Highways and Byways of the South (One lecture, illustrated).

Assistant Professor ELIOT BLACKWELDER. Methods of Transportation in China (One lecture, illustrated); Chinese Temples and Sacred Places (One lecture, illustrated); The People of China and How They Live (One lecture, illustrated).

Assistant Professor LAWRENCE MARTIN. Volcanoes; Earthquakes; Weathering and Wind Work; Rivers; Glaciers; The Sea Coast; (All illustrated by lantern slides. Each of these may be given as a separate lecture, or the six may be combined

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as a course in physical geography); Niagara Falls; The Grand Canyon of the Colorado; the Glaciers of Alaska; The Inside Passage to Alaska (Single lectures, all illustrated by lantern slides).

Mr. L. R. HERRICK. Ocean Steamships (One lecture); Tangier, Outpost of Barbarism (One lecture); A Journey to Paris (One lecture); Fontainebleau, Versailles and St. Denis (One lecture); The Chateaux Country (One lecture); Picturesque Brittany (One lecture); The Alhambra (One lecture); Down the Portuguese Frontier (One lecture). (All illustrated.)

III. DEBATING AND PUBLIC DISCUSSION

PURPOSE

This department aims to arouse and stimulate among all classes of people an intelligent and active interest in important social and political questions. Believing that there is no form of popular education that tends more essentially to the making of good citizens than study and discussion of live issues, the department collects and maintains a loan library of books and periodicals relating to questions of the day, available upon application, issues bulletins on special topics, and keeps in touch by correspondence or personal interview with civic leagues, town councils, library and school boards, farmers' and business men's clubs, high school and academy societies, and all similar organizations throughout the state.

Loan Material

The collection of loan material for the use of individuals or organizations, includes only subjects of practical and timely interest, those great questions which are being weighed by the nation or state, and those, of even closer appeal to the citizen, which relate to the municipal policies of his own community. Clippings from newspapers, periodicals, state and national publications, books, in short everything of value bearing upon questions of current interest, dealing fairly and comprehensively with both sides of the discussion, are accumulated by this department and placed at the disposal of those who will use them.

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Bulletin

The bulletins, which formulate subjects for debate and give full lists of references on both affirmative and negative sides with information as to where and how this data may be obtained either from libraries, archives or the Extension Division of the University, are widely distributed. Such questions as the following are presented: *The Election of Senators by Popular Vote, Postal Savings Bank, The Immigration Problem*, several phases of the "good roads" problem, *The Guaranty of Bank Deposits, The Commission Form of City Government*, and *Compulsory Arbitration*. The department advises dropping the antiquated questions so popular in the past and grappling in public discussion with the live questions which are before the people for solution.

The bulletins are distributed within the state free of cost, and loan material is supplied, usually without cost and with as little restraint as possible as to time and conditions of use.

In addition to the publications suggesting subjects for debate, several compact and simple guides have been issued as aids to beginners in the practice of debating. These pamphlets discuss *Debating Societies—Organization and Procedure, Parliamentary Motions*, and *Principles of Effective Debating*. Though designed for the use of beginners, these guides are replete with practical suggestions for experienced speakers and are valued by practiced debaters.

To Whom this Work Appeals

The youths in all graded and high schools, academies, and colleges, in debating and literary societies, as well as the young people organized into clubs and societies by churches, Christian Associations, settlements and other agencies are making practical and effective use of the direction and assistance offered by this department. The constructive value of this work in the education of the youth for citizenship becomes at once apparent when one appreciates the service that is being rendered not only in direction and stimulation, but also in the preparation of debates, essays, and orations.

In addition to the work with the younger citizens, the department establishes and maintains useful relations with various

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civic leagues, with the organizations of farmers and of working men, and with women's clubs.

An important phase of the work applies to legislative problems from the point of view of the voter. This department of debating and public discussion does for the voter and lay citizen what the legislative reference department does for the members of the legislature. The assistance offered in this way is helpful to county boards, common councils, village, town and school boards, not only in the consideration of local questions, but also in deliberation upon the relation of such questions to the larger problems which confront the commonwealth as a whole.

IV. General Information and Welfare

PURPOSE

In recognizing the public obligation to establish and maintain institutions for higher education and for research, there is also implied the right of the citizens who contribute to the support of these institutions to a share in their fruits. Therefore, in a university which truly serves the commonwealth there exists a proper place for a department of general information and welfare.

A Clearing-House

This department becomes thereupon the clearing-house through which all reasonable inquiries of the people of the state may receive consideration. The department also disseminates, methodically, such information or knowledge as is of general service in the well-being, prosperity, and progress of a people.

The researches of government bureaus and commissions, of experiment stations and laboratories, of scientific institutions and associations are too often imbedded in voluminous or technical reports to serve their full measure of usefulness. The results of this achievement and mastery should find an agency and a form for proper dissemination, which maintains all the essential facts, but adapts them and makes them available for untechnical and democratic needs.

Results of inquiry or research relating to food, hygiene and sanitation, to the discoveries affecting the prevention and cure

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of disease, to economic, political, social, and ethical questions, to the problems of general and special education, to the conservation of resources, to agricultural, engineering, manufacturing, and commercial conditions, to recreation and social health, to child labor, to municipal problems, to the abatement of noise, dust, and smoke, to water supplies and garbage disposals, to the aesthetic requirements of life in country and in city, to home furnishing and decoration, to landscape design, to architecture, to music, and to art in general,—these are among the topics in connection with which this department may render valuable public services.

Method

This department gathers informational literature, presents it in suitable form for distribution, and encourages its study and use. The department will also secure expert advisers for communities having special problems to solve.

Exhibits

Exhibits consisting of statistical charts, pictures, models and descriptive literature interpreted by an expert, may present a valuable method of instruction in the care and prevention of diseases. For some years, several departments of the University have co-operated in accumulating a very effective and instructive tuberculosis exhibit, which was perfected by the Wisconsin Anti-Tuberculosis Association preparatory to the International Tuberculosis Congress at Washington in September, 1908. The Extension Division will send this exhibit upon application, without cost beyond expense of transportation. Similar exhibits for scarlet fever and other diseases will be prepared as rapidly as possible.

Vocational Institutes

An effective form of instruction in the scientific principles underlying and affecting trades, is presented in the vocational institute. Lectures and demonstrations dealing with the latest investigation of experts who stand at the head of their special lines of research are presented in such simple and practical form as to be readily available by the crafts. The Extension Division will arrange for, and conduct institutes of one or more days duration as desired.

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PHYSICAL TRAINING—MEN

PROFESSOR HUTCHINS, DIRECTOR; PROFESSOR ELSOM, MEDICAL EXAMINER; MR. BARRY, MR. DAVIDSON, MR. MAIN, MR. NOYES, MR. ROGERS, MR. TEN EYCK, MR. ZARFOS, MR. ZEIDLHACK.

The Department of Physical Training has jurisdiction over all gymnastic and athletic activities. It is the aim of the department to give the students such exercises, games and sports as will best create and maintain a vigorous physical health. It endeavors to reach a large number of students, especially the weak and undeveloped, and to give to all exercise that will be not only beneficial but interesting. Physical Training is required of all freshmen and sophomore students on two days of each week, from November to May.

The gymnasium is one of the largest in the country. Its size is 200 feet in length by 100 feet in width. On the ground floor are to be found the necessary offices, the locker rooms, the bath rooms, swimming pool, hydraulic rowing machines. On the second floor there is an unobstructed hall 165 by 98 feet, used for the purposes of gymnastic exercise and military drill. The gymnasium equipment includes the usual apparatus and developing machines. The third floor contains six large handball courts and two running tracks.

A large athletic field is provided for the use of students, and all intercollegiate and other games and meets are held here. The field is equipped with two large grandstands, a running track, and other necessary features. The University boat-house is located next to the gymnasium on the shore of Lake Mendota. The present equipment of ten shells is being increased yearly. A forty horse-power launch was purchased two years ago.

MEDICAL AND PHYSICAL EXAMINATIONS

Physical Examinations. Required each semester of all freshmen. The examination includes about fifty measurements of the body, various strength tests, the examination of heart and lungs and other vital organs, tests for vision and hearing, and special tests for curvature of spine and other physical inequalities. Examinations by appointment. DR. ELSOM.

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Lectures. On the physiology of exercise, personal hygiene, health culture, etc. These lectures take the place of the regular gymnasium classes on the days when the lectures are given. DR. ELSOM.

To overcome the tendency to consider compulsory physical training onerous, to stimulate interest in the work and to create the spirit of play while the body is being developed, the system of electives has been instituted this year. Thirteen forms of athletic activity are offered and students may enroll for their required work in any of these which appeal to their taste. They are open as well to upper classmen and short course and dairy students for voluntary work and instruction. No difference is made between indoor and outdoor athletics.

COURSES IN PHYSICAL TRAINING

Two periods a week required in first and second years.

1. Gymnastics. Calesthenic drills, setting up exercises, dumbbell, wand and bar-bell drills, etc.; indoor games. Mr. MAIN, Mr. ZARFOS, Mr. ZEIDLHACK.

2. Advanced Gymnastics. Squad work on gymnastic apparatus, horses, parallel, vaulting and horizontal bars, bucks, rings, etc. Gymnastic games. Mr. MAIN, Mr. ZARFOS, Mr. ZEIDLHACK.

3. Track and Field Athletics. The work consists of body building in the education of special groups of muscles with technical instruction in starts, dashes, high and broad jumping, pole-vaulting, shot-putting, and distance running; hammer and discus throwing outdoors only. Dr. HUTCHINS.

4. Cross-Country Running. Members of the cross-country squad working regularly until Thanksgiving are credited in Physical Training. Dr. HUTCHINS.

5. Baseball and Football. Recreative sport as a relaxation from study offers no better channels for general development than baseball in the spring and football in the fall months. Great care is exercised in excluding from the more vigorous sports those incapable of deriving physical benefit therefrom. Mr. BARRY, Mr. DAVIDSON.

6. Rowing. Instruction is given on the rowing machines during the winter months, and in watermanship in the fall and spring in the barges and shells on Lake Mendota. Rowing is notable for the development of the powers of endurance. The

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University now owns ten shells, accommodating seventy men on the water at one time. Mr. TEN EYCK.

7. Basketball. One of the best indoor sports, in the totality of physical development, is afforded ample space and opportunity on the spacious main floor. Mr. NOYES, Mr. ROGERS.

8. Swimming. The class meets daily. The various strokes are taught, also diving, under water swimming, and life-saving methods. All sophomores must be able to swim 50 yards to receive their credits. Mr. TEN EYCK.

9. Boxing. Used as a pastime. Class limited to twenty-five.

10. Fencing. A class for beginners, who are taught the position of *en guard*, and all principal attacks and parries. Mr. ZARFOS.

11. Tumbling. Instruction is given twice a week in mat work. Special attention is devoted to form and finish. Mr. MAIN, Mr. ZARFOS.

12. Special Classes. Students found on medical examination to be asthenic or to have any functional deformity are prohibited from entering the above classes. Attention is given to the individual needs of these cases. Dr. ELSOM.

PHYSICAL TRAINING—WOMEN

ASSISTANT PROFESSOR MAYHEW; MISS ATKINSON, MISS MERRICK, MISS PICKARTS.

The Women's Gymnasium occupies the second and third floors of the new Women's Building. The main gymnasium is two stories high, and has a floor space of 118 by 60 feet. There is a gallery for visitors at one end and a running track around the gymnasium. The concert room which is 72 by 42 feet will be used as a gymnasium for the smaller classes.

Two floors of one wing contain dressing rooms, showers, and lockers. On each floor there will be 60 dressing rooms, 30 showers, and 500 lockers. Only one floor is fitted up at present.

The swimming pool is located at one end of the basement, and is well lighted and ventilated. The pool is 60 by 26 feet. Adjacent to the pool is a room containing dressing rooms, showers and lockers. There are four bowling alleys also in the basement.

With the establishment of this new gymnasium, the women of the University will be given the best facilities for elementary and advanced courses in physical training. While the work is

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required for the first two years only, it is hoped that all the women will make arrangements to enter classes, use the swimming pool, bowling alleys and showers. Classes will be arranged for both third and fourth year students.

The work is required of all first and second year students, both regular and special. The required work opens with a course of six practical talks on the value of physical training, the care of the body, etc., and the first lecture is held on the first Thursday of recitations. The freshmen meet in the gymnasium Thursday at 4 o'clock, and the sophomores at 5 o'clock. Registration days—Tuesday, Wednesday, and Thursday, September 28, 29, 30, in the Physical Director's office, first floor, Women's Building.

The main objects of the training for women are the acquiring and maintaining of good health and the producing of a good physical foundation for mental activity. Other results are poise, control, grace, and development.

Each student is given a careful physical examination on entering the department, in order that the physical condition may be known, and suitable exercise prescribed for individual cases. A second examination will be given during the second semester, in order that the improvements and benefits of the course of exercise may be shown.

The apparatus is complete and varied, consisting of chest weights, dumb-bells, wands, bar-bells, Indian clubs, etc., besides a complete outfit of Swedish apparatus and other forms of appliance for development and physical improvement. Music is used in class-drills.

A uniform gymnasium costume is required. The suit can be made to order for $5.00. Those wishing to order the suit will send bust and waist measures to the Director. Full directions for making the suit will be sent upon application to the Director. An outing skirt at least six inches from the ground is also necessary for outdoor sports.

The Women's Athletic Association is maintained to further all out-door sports: tennis, field hockey, basketball, cross-country walking, bowling, swimming, etc.

COURSE IN TEACHERS' GYMNASTICS

This course includes theory of physical training and practice in teaching gymnastics, instruction in sports and games, and

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management and organization of playgrounds, corrective exercises which may be used in the school room, and lectures on personal and school hygiene. This course is primarily for seniors who have had three years of gymnastics. Two hours credit. Repeated each semester. The class meets on the first Thursday of recitations at 2 to arrange a permanent hour.

MILITARY SCIENCE AND TACTICS

CAPTAIN RALPH MCCOY, 5TH U. S. INFANTRY, COMMANDANT.

Military instruction at the University of Wisconsin is not elective, but is required by law. The congress of the United States and the legislature of the state of Wisconsin have made it a special and imperative feature of the course of education furnished at this institution. By the regulations of the University, all able-bodied male students of the freshman and sophomore classes are required to take military drill unless excused by proper authority.

Freshmen, who, prior to entering the University, have received the equivalent of one year's instruction in the University regiment, may, at the discretion of the Commandant, be required to drill one year only, provided they furnish proper credentials from accredited military schools or National Guard organizations. Students who have served honorably in the Army or Navy of the United States, may receive full credit for drill at the University without further military instruction.

Students from foreign countries, not intending to become citizens of the United States, may at the discretion of the Commandant, be excused from drill.

Students over twenty-two years of age taking a special course and not intending to graduate, may be excused from drill; but should such students change at any time from a special to a full course, they will be required to make up the full two years of drill.

Students who enter as candidates the crews or intercollegiate athletic teams may be excused from drill by the Commandant up-

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on recommendation of the Department of Physical Training. When a member of a crew or an athletic team shall be discharged from such crew or team, he will be reported back to the Commandant for drill at the next drill succeeding his discharge.

No student is entitled to excuse from drill on the ground of employment unless such employment is necessary for his support. It is not the intention of the university to force students to drill when such action would practically compel them to leave the university. On the other hand, students cannot be permitted to engage in other occupations which are not necessary for their support and claim excuse from drill on the ground that such employment interferes with the drill hour. In such a case, drill will be regarded the same as any other study.

Normal school graduates are not required to drill.

Applications for excuse for any cause must be submitted to the Commandant on the prescribed blank within two weeks after the beginning of each semester.

The work of the military department embraces a course in drill regulations, a course of lectures on military subjects, and practical instruction in the school of the soldier, squad, company and battalion, target practice, and drill in first aid to the injured. All commissioned officers, the sergeants major, quartermaster sergeants, and first sergeants, are required to take this course. The credit for the course is that of a two unit-hour study.

Drills will begin at the opening of the first semester, and be held at least two hours a week until April first, and four hours a week thereafter.

All appointments to office in the companies shall originate in the sophomore class, but officers may be promoted and continued in office during their junior and senior years.

All students must provide themselves with the cadet uniform described in the regulations for the military department. This uniform can be procured in Madison for about fifteen dollars.

Organization

The organization is that of a regiment of infantry, consisting of two battalions of four companies each, a band, trumpet corps, target detachment, and hospital corps. These organizations will be supplied with a full quota of officers. Students will enter

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the infantry regiment and afterward be specially assigned to the other organizations at the discretion of the Commandant.

The University fees of cadets appointed to all grades above that of lieutenant will be remitted. The same fees and an additional prize of fifty dollars will be paid the cadet colonel and lieutenant colonel, and twenty-five dollars to each major. These officers will act as assistant instructors in Military Science and Tactics.

Upon graduation specially qualified students receive from the Governor of Wisconsin commissions of brevet second lieutenants in the State National Guard, subject to assignment to duty for five years after graduation.

ROSTER OF UNIVERSITY CORPS OF CADETS, 1908-09

Commandant

Captain Ralph McCoy, U. S. Infantry.

Surgeon

Lieutenant-Colonel James C. Elsom, Medical Examiner.

Cadet Officers

REGIMENTAL, FIELD, AND STAFF

Colonel, A. B. Ordway.
Lieutenant Colonel, R. G. Saxton.
Captain and Adjutant, D. R. Mihills.
Captain and Quartermaster, L. M. Hammond.
Sergeant Major, J. T. Sheafor.
Chief Trumpeter, B. Sorenson.

BAND

Captain, C. D. Mann.
1st Lieutenant, P. H. Morris.
2nd Lieutenant, A. H. Robertson.

FIRST BATTALION

Major, E. C. Griswold.
1st Lieutenant and Adjutant, W. T. Brunow.
2nd Lieutenant and Quartermaster, T. M. Reynolds.
Sergeant Major, R. A. Heilman.
Quartermaster Sergeant, C. F. G. Wernicke.

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Company A.
Captain, H. A. Olds.
1st Lieutenant, W. Tribe.
2nd Lieutenant, T. M. Kearney.
1st Sergeant, C. J. Lueders.

Company B.
Captain, H. H. Kerr.
1st Lieutenant, A. J. Barclay.
2nd Lieutenant, A. B. Doe.
Ist Sergeant, R. C. Phipps.

Company C.
Captain, J. R. Newman.
1st Lieutenant, W. C. Elmore.
2nd Lieutenant, L. L. Hebbard.
1st Sergeant.

Company D.
Captain, H. A. Schuette.
1st Lieutenant, G. W. Esau.
2nd Lieutenant, E. F. Week.
1st Sergeant,

SECOND BATTALION

Major, E. B. Colladay.
1st Lieutenant and Adjutant, H. L. Algeo.
2nd Lieutenant and Quartermaster, G. Packard.
Sergeant Major, H. G. Abendroth.
Quartermaster Sergeant.

Company E.
Captain, W. B. Schulte.
1st Lieutenant, L. R. Talbot.
2nd Lieutenant, H. D. White.
1st Sergeant, H. O. Brill.

Company F.
Captain, K. E. Wagner.
1st Lieutenant, C. W. Esau.
2nd Lieutenant, P. H. Martin.
1st Sergeant, H. W. Vroman.

Company G.
Captain, J. R. Coleman.
1st. Lieutenant, H. D. Blake.
2nd Lieutenant, E. D. Gilman.
1st Sergeant,

Company H.
Captain, J. T. Welsh.
1st Lieutenant, K. M. Mann.
2nd Lieutenant, C. J. Moritz.
1st Sergeant, C. F. Schwenker.

HOSPITAL CORPS

Lieutenant Colonel, J. C. Elsom.
2nd Lieutenant, B. J. Bockelman.
1st Sergeant, R. N. Crawford.

TARGET DETACHMENT

Captain, L. W. Wille.
2nd Lieutenant, O. D. Knight.

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THE SUMMER SESSION

GEORGE C. SELLERY, Director

DURATION OF THE SESSION

The eleventh Summer Session of the University of Wisconsin opens June 28, 1909. The session lasts six weeks and closes August 6, except in the College of Law, where the session continues for ten weeks and ends September 3.

Classes of Courses

Courses, both academic and professional, are offered for graduates, and for undergraduates in arts, law, and engineering, for teachers in colleges, high schools, and technical schools; and for special students, as lawyers, doctors, and practicing engineers. Practically all the courses carry full academic credit.

Terms of Admission

The requirements for graduates and undergraduates who desire University credit are the same for the summer session as for the other sessions of the University.

All persons, however, who desire to share in its advantages may be enrolled in the summer session without passing the entrance examination. They are freely admitted to all courses as auditors, and are permitted to elect work in the courses for which they are qualified. Credit toward a degree will be given, however, only to students who satisfy the entrance requirements of the University.

Fees and Registration

The general fee for the summer session, irrespective of the number of courses taken, is $25 in the College of Law, and $15 in the other colleges and in the Graduate School. Those who attend merely as visitors pay the same fee as other students.

Registration must precede entrance upon any part of the work of the session. Registration takes place Saturday, June 26, and Monday, June 28, at the office of the Registrar, 158 University Hall.

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Summer Circular

For illustrated bulletin of the summer session, describing the different courses in considerable detail, apply to the Registrar.

GRADUATE SCHOOL AND COLLEGE OF LETTERS AND SCIENCE

Anatomy

PROFESSOR BARDEEN AND ASSOCIATE PROFESSOR MILLER

1. Physiological Anatomy. *M.*, *W.*, *F.*, *at* 2. One unit-hour credit. Professor BARDEEN.
2. Mammalian Anatomy. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 9 *to* 12. Three unit-hours credit. Associate Professor MILLER.
3. Histology and Organology. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 2 *to* 5. Three unit-hours credit. Associate Professor MILLER.
4. Neurology. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 2 *to* 5. Credit according to work done. Associate Professor MILLER.
5. Human Anatomy. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 9 *to* 5. Credit according to work done. Professor BARDEEN.
6. Topographical Anatomy. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 9 *to* 5. Credit according to work done. Professor BARDEEN.
7. Research. Professor BARDEEN and Associate Professor MILLER.

Art and Design

MISS DEMENT

1. Design. Two lectures and six hours laboratory work per week at hours to be arranged. Two unit-hours credit, subject to twenty-hour rule.
2. Household Art. Two lectures and six hours of laboratory work at hours to be arranged. Two unit-hours credit, subject to twenty-hour rule.

Botany

ASSOCIATE PROFESSOR ALLEN; ASSISTANT PROFESSORS DENNISTON AND MARQUETTE, AND MR. STOUT.

1. General Botany. Lectures and laboratory work, *M.*, *Tu.*, *W.*, *Th.*, *F.*, 8 *to* 10, *and three hours to be arranged.*

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Lectures, *M.*, *W.*, *F.*, at 9. Three unit-hours credit. Associate Professor ALLEN and Mr. STOUT.

2. Algæ. Lectures, laboratory, and field work, *M.*, *Tu.*, *W.*, *Th.*, *F.*, 2 *to* 4, *and three hours to be arranged.* Lectures, *M.*, *W.*, *F.*, *at* 2. Three unit-hours credit. Assistant Professor MARQUETTE.
3. Mosses and Ferns. Lectures and laboratory work. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 10 *to* 12. *Two unit-hours' credit.* Associate Professor ALLEN and Mr. STOUT.
4. Description and Classification of Seed Plants. Lectures, laboratory and field work. *M.*, *W.*, *F.*, 4 *to* 6, *and Saturday excursions.* Two unit-hours credit. Assistant Professor DENNISTON.
5. Vegetable Histology. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 11 *to* 1. Two unit-hours credit. Assistant Professor DENNISTON.
6. Botanical Materials. Laboratory and field work five hours per week. Hours on consultation. One unit-hour credit. Assistant Professor MARQUETTE.
7. Modern Aspects of Heredity. *M.*, *W.*, *F.*, *at* 4. One unit-hour credit. Associate Professor ALLEN.
8. Research. Associate Professor ALLEN, Assistant Professors DENNISTON and MARQUETTE.

Chemistry

PROFESSOR LENHER; ASSISTANT PROFESSOR WALTON; DR. MATHEWS, MR. KLEIN, AND MR. DIEMER.

1. General Chemistry. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. Two unit-hours credit for the lecture course; in the laboratory, credit according to amount of work done. Assistant Professor WALTON, Dr. MATHEWS, and Mr. KLEIN.
2. Qualitative Analysis. Lectures, *Tu.*, *Th.*, *at* 10. Two or more unit-hours credit. Mr. KLEIN and Mr. DIEMER.
3. Quantitative Analysis. Lectures, *Tu.*, *Th.*, *at* 8. Three or more unit-hours credit. Professor LENHER and Mr. DIEMER.
4. Advanced Quantitative Analysis. Lectures, *Tu.*, *at* 9. Two or more unit-hours credit. Professor LENHER.
5. Advanced Inorganic Chemistry. *M.*, *W.*, *F.*, *at* 8. One unit-hour credit. Professor LENHER.
6. Physical Chemistry. Lectures, *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8.

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Laboratory hours to be arranged. Three or more unit-hours credit. Dr. MATHEWS.

7. Research. Professor LENHER, Assistant Professor WALTON, and Dr. MATHEWS.

Education

PROFESSOR ELLIOT; ASSISTANT PROFESSOR DEARBORN; AND DR. NEUMANN (COLLEGE OF THE CITY OF NEW YORK). SUPERINTENDENT KENDALL, OF INDIANAPOLIS, SPECIAL LECTURER.

1. Modern Educational Classics. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8. two unit-hours credit. Professor ELLIOTT.
2. Principles of Education. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. Two unit-hours credit. Assistant Professor DEARBORN.
3. Principles of Moral Education. *M.*, *W.*, *F.*, *at* 11. One unit-hour credit. Dr. NEUMANN.
4. Administration and Supervision of Education. Supplementary Agencies. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 9. Two unit-hours credit. Professor ELLIOTT.
5. Seminary in Educational Psychology. *Tu.*, 4 *to* 6 (subject to arrangement). Credit according to work done. Assistant Professor DEARBORN.

English

PROFESSOR HUBBARD; ASSISTANT PROFESSORS BEATTY, DICKINSON, YOUNG; AND MR. BASSETT.

1. Preparatory English. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8; *M.*, *W.*, *F.*, *at* 9. Mr. BASSETT.
2. Freshman English. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8; *M.*, *W.*, *F.*, *at* 9. Three unit-hours credit. Assistant Professor BEATTY.
3. English Literature from the Beginning to Shakspere. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 9. Two unit-hours credit. Assistant Professor YOUNG.
4. English Literature from Shakspere to Swift. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 11. Two unit-hours credit. Assistant Professor DICKINSON.
5. Anglo-Saxon. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8. Two unit-hours credit. Assistant Professor YOUNG.
6. The Poetry of Tennyson. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 11. Two unit-hours credit. Assistant Professor BEATTY.

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7. The Novel. *M., Tu., W., Th., F., at* 10. Two unit-hours credit. Assistant Professor DICKINSON.
8. Chaucer. *M., Tu., W., Th., F., at* 10. Two unit-hours credit. Professor HUBBARD.
9. Pre-Shaksperean Drama. *M., Tu., W., Th., F., at* 9. Two unit-hours credit. Professor HUBBARD.
10. The Teaching of English. *M., Tu., W., Th., F., at* 12. Two unit-hours credit. Mr. BASSETT.

Geology

ASSISTANT PROFESSOR WHITBECK.

1. Physical Geography for High School Teachers. *M., Tu., W., Th. F., at* 11. Two unit-hours credit.
2. Physiography of the United States. *M., Tu., Th., at* 12. One unit-hour credit.
3. Field Study. One unit-hour credit.

German

PROFESSOR HOHLFELD; ASSISTANT PROFESSORS KIND, PROKOSCH, AND ROEDDER; DR. HAERTEL, AND MR. DIEHL.

1. Beginners' German. *M., Tu., W., Th., F.,* 10 *to* 12. Four unit-hours credit. Mr. DEIHL.
2. Second Year German. *M., Tu., W., Th., F.,* 10 *to* 12. Four unit-hours credit. Dr. HAERTEL.
3. Conversation. Two sections. *M., Tu. W., Th., F., at* 8 *and at* 10. One unit-hour credit. Assistant Professors KIND and PROKOSCH.
4. Composition and Grammar Review. *M., Tu., W., Th., F., at* 11. Two unit-hours credit. Assistant Professor ROEDDER.
5. Schiller. *M., Tu., W., Th., F., at* 8. Two unit-hours credit. Mr. DEIHL.
6. Rapid Reading. *M., Tu., W., Th., F., at* 10. Two unit-hours credit. Assistant Professor KIND.
7. Lessing. *M., Tu., W., Th., F., at* 12. Two unit-hours credit. Dr. HAERTEL.
8. Advanced Practice in Writing and Speaking German. *M., W., F., at* 11. One unit-hour credit. Assistant Professor PROKOSCH.

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9. Teachers' Course. *M.*, *W.*, *F.*, *at* 12. One unit-hour credit. Assistant Professor PROKOSCH.
10. Phonetics. *M.*, *W.*, *F.*, *at* 9. One unit-hour credit. Assistant Professor PROKOSCH.
11. Grillparzer. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 9. Two unit-hours credit. Assistant Professor KIND.
12. Studies in Old High German. *M.*, *W.*, *F.*, *at* 10. One or two unit-hours credit. Assistant Professor ROEDDER.
13. Goethe. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8. Two unit-hours credit. Professor HOHLFELD.
14. Seminary in German Philology. *Tu.*, *Th.*, 9 *to* 10:30. One or two unit-hours credit. Assistant Professor ROEDDER.
15. Seminary in German Literature. *Tu.*, *Th.*, 11 *to* 1; *W.*, *at* 3. Two unit-hours credit. Professor HOHLFELD.

Greek

PROFESSOR CHARLES FORSTER SMITH.

1. Elementary Greek. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 12. Two unit-hours credit.
2. Homer's Iliad or Odyssey. *M.*, *W.*, *F.*, *at* 10. One unit-hour credit.
3. Plato's Apology and Crito. *M.*, *W.*, *F.*, *at* 11. One unit-hour credit.
4. Greek Literature and Life. *Tu.*, *Th.*, *at* 11; *Th.*, *at* 4. One unit-hour credit.
5. Pindar. Three hours a week to be arranged. One unit-hour credit.

History

PROFESSORS DENNIS, MUNRO, SCHMIDT (CORNELL UNIVERSITY), AND TURNER; ASSOCIATE PROFESSOR SELLERY; AND DR. ROOT.

1. Medieval History, 395–1095. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. Two unit-hours credit. Professor MUNRO.
2. English History since 1485. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8. Two unit-hours credit. Professor DENNIS.
3. The United States from the Revolution to 1830. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 12. Two unit-hours credit. Dr. ROOT.
4. Oriental History. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 12. Two unit-hours credit. Professor SCHMIDT.

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5. The Crusades. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 11. Two unit-hours credit. Professor MUNRO.
6. The Renaissance in Italy. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8. Two unit-hours credit. Associate Professor SELLERY.
7. Tudors and Stuarts, 1558–1642. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 9. Two unit-hours credit. Professor DENNIS.
8. The American Colonies to 1760. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. Two unit-hours credit. Dr. ROOT.
9. The History of the West to 1830. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 11. Two unit-hours credit. Professor TURNER.
10. Seminary in American History. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 12. Two unit-hours credit. Professor TURNER.
11. The Teaching of History. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 9. Two unit-hours credit. Associate Professor SELLERY.

Latin

PROFESSOR WRIGHT (LAWRENCE COLLEGE); ASSOCIATE PROFESSOR SHOWERMAN; AND MR. BRANDT.

1. Elementary Latin. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 8 *to* 10. Four unit-hours credit. Mr. BRANDT.
2. Caesar's *Bellum Gallicum*. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. Two unit-hours credit. Mr. BRANDT.
3. Cicero's *De Amicitia*. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 9. Two unit-hours credit. Professor WRIGHT.
4. Latin Composition. *Tu.*, *Th.*, *at* 10, with a third hour to be fixed. One unit-hour credit. Professor WRIGHT.
5. Roman Lyric Poetry. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. Two unit-hours credit. Associate Professor SHOWERMAN.
6. Life and Letters in the First Century after Christ. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 11. Two unit-hours credit. Associate Professor SHOWERMAN.
7. Teachers' Course. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8. Two unit-hours credit. Professor WRIGHT.

Mathematics

PROFESSOR VAN VLECK; ASSISTANT PROFESSOR DOWLING; DR. BIRKHOFF, AND MR. MARCH.

1. Algebra. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. Two unit-hours credit. Professor VAN VLECK.

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2. Solid Geometry. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 12. Assistant Professor DOWLING.
3. Plane Trigonometry and Logarithms. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8. Two unit-hours credit. Mr. MARCH.
4. Analytic Geometry. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. Two unit-hours credit. Assistant Professor DOWLING.
5. Calculus. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 12. Two unit-hours credit. Dr. BIRKHOFF.
6. Theory of Complex Numbers and Algebraic Equations of One Variable. *M.*, *W.*, *F.*, *at* 9. One unit-hour credit. Mr. MARCH.
7. History of Algebra and Geometry. *Tu.*, *Th.*, *at* 11, *with a third hour to be assigned.* One unit-hour credit. Assistant Professor DOWLING.
8. Modern Geometry. *M.*, *W.*, *F.*, *at* 11. One unit-hour credit. Professor VAN VLECK.
9. Mechanics. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. Two unit-hours credit. Mr. MARCH.
10. Differential Equations. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 9. Two unit-hours credit. Dr. BIRKHOFF.
11. The Theory of Infinite Series. *M.*, *W.*, *F.*, *at* 8. One unit-hour credit. Dr. BIRKHOFF.
12. The Principal Functions of Mathematics and Physics. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 9. Two unit-hours credit. Professor VAN VLECK.

Music

MR. DYKEMA.

1. Public School Music, Elementary. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 11. Two unit-hours credit, subject to the twenty-hour rule.
2. Public School Music, Advanced. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 12. Two unit-hours credit, subject to the twenty-hour rule.
3. Music Appreciation. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. One unit-hour credit, subject to the twenty-hour rule.

Philosophy

ASSISTANT PROFESSORS BODE AND DEARBORN.

1. General Psychology. Lectures, *M.*, *Tu.*, *W.*, *Th.*, *at* 11; laboratory hours to be arranged. Two unit-hours credit. Assistant Professor DEARBORN.

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2. The Philosophy of Nature. *M., Tu., W., Th., F., at* 9. Two unit-hours credit. Assistant Professor BODE.
3. Types of Philosophic Theory. *M., Tu., W., Th., F., at* 10. Two unit-hours credit. Assistant Professor BODE.
4. Philosophical Seminary. Hours to be arranged. Credit according to amount of work done. Assistant Professor BODE.

Physical Training

PROFESSOR ELSOM; MISS ATKINSON; AND ASSISTANTS.

1. Light Gymnastics. *M., Tu., W., Th., F., at* 12. Professor ELSOM.
2. Light Gymnastics. *M., Tu., W., Th., F., at* 11. Miss ATKINSON.
3. Swimming. Men's class, *Tu., Th., S., at* 5. Women's classes, *M., W., F., at* 5; *Tu., Th., S., at* 11. Professor ELSOM and assistants.
4. Folk Dances and Games. *M., Tu., W., Th., F., at* 12. Miss ATKINSON.
5. Corrective Gymnastics. *Tu., W., Th., at* 10. Miss ATKINSON.
6. First Aid to the Injured. *M., Tu., W., at* 4. Professor ELSOM.
7. Plays and Playgrounds. *M., W., F., at* 9. Professor ELSOM.

Physics

PROFESSORS MENDENHALL AND SNOW; ASSISTANT PROFESSOR GAGE.

1. General Lectures. *M., Tu., W., Th., F., at* 12. Two unit-hours credit. Professor MENDENHALL.
2. General Laboratory Practice. Ten hours per week. One unit-hour credit for each thirty hours of work performed. Assistant Professor GAGE.
3. Advanced Heat or Light. *M., Tu., W., Th., F., at* 8. Two unit-hours credit. Professor MENDENHALL.
4. Advanced Laboratory Practice. *M., Tu., W., Th., F.,* 2 *to* 4. One unit-hour credit for each thirty hours of work. Professor MENDENHALL.
5. Lectures for High School Teachers. *M., Tu., W., Th., F., at* 5. Professor SNOW.

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Political Economy

PROFESSORS JOHNSON (UNIVERSITY OF PENNSYLVANIA), ROSS, AND WICKER (DARTMOUTH COLLEGE), MRS. SPENCER (NEW YORK SCHOOL OF PHILANTHROPY), AND DR. HESS.

1. The Elements of Economic Science. *M., Tu., W., Th., F., at* 8. Two unit-hours credit. Professor WICKER.
2. Money and Banking. *M., Tu., W., Th., F., at* 12. Two unit-hours credit. Dr. HESS.
3. Labor. *M., Tu., W., Th., F., at* 9. Two unit-hours credit. Professor WICKER.
4. Elements of Statistics. Lectures, *M., W., F., at* 11; four hours of laboratory work to be arranged. Two unit-hours credit. Dr. HESS.
5. Transportation. *M., Tu., W., Th., F., at* 11. Two unit-hours credit. Professor JOHNSON.
6. Commerce. *M., Tu., W., Th., F., at* 10. Two unit-hours credit. Professor JOHNSON.
7. Social Psychology. *M., Tu., W., Th., F., at* 10. Two unit-hours credit. Professor ROSS.
8. The Dynamics of Population. *M., Tu., W., Th., F., at* 8. Two unit-hours credit. Professor ROSS.
9. Methods of Social Service. *M., Tu., W., Th., F., at* 9. Two unit-hours credit. Mrs. SPENCER.
10. Sociological Conference. *W., at* 12. Professor ROSS and Mrs. SPENCER.

Political Science

PROFESSOR REINSCH AND MR. SHEPARD.

1. Elements of Political Science. *M., Tu., W., Th., F., at* 10. Two unit-hours credit. Mr. SHEPARD.
2. European Governments. *M., Tu., W., Th., F., at* 11. Two unit-hours credit. Mr. SHEPARD.
3. International Law. *M., Tu., W., Th., F., at* 8. Two unit-hours credit. Professor REINSCH.
4. Political Philosophy. *M., Tu., W., Th., F., at* 9. Two unit-hours credit. Professor REINSCH.

Public Speaking

MR. JOHNSTONE.

1. Interpretative Reading. *M., W., F., at* 9. One unit-hour credit.

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2. Practical Public Speaking. *M.*, *W.*, *F.*, *at* 10. One unit-hour credit.
3. Ex-tempore Speaking. *M.*, *W.*, *F.*, *at* 11. One unit-hour credit.
4. Pedagogy of Public Speaking. Hours to be arranged. One unit-hour credit.

Romance Languages

PROFESSOR H. A. SMITH; ASSISTANT PROFESSOR GAY; MR. HERRICK, AND MR. MICHELL.

1. Beginners' French. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 8 *to* 10. Four unit-hours credit. Mr. MICHELL.
2. Second Semester French. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 11. Two unit-hours credit. Mr. HERRICK.
3. Advanced French. *M.*, *W.*, *F.*, *at* 9. One unit-hour credit. Professor SMITH.
4. Elementary Conversation. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8. One unit-hour credit. Mr. HERRICK.
5. Advanced Conversation. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 9. One unit-hour credit. Mr. HERRICK.
6. Grammar and Composition. *M.*, *W.*, *F.*, *at* 12. One unit-hour credit. Mr. MICHELL.
7. Nineteenth Century French Drama. *M.*, *W.*, *F.*, *at* 11. One unit-hour credit. Professor SMITH.
8. Seventeenth Century French Prose. *Tu.*, *Th.*, *at* 10, *with a third hour to be arranged.* One unit-hour credit. Assistant Professor GAY.
9. Old French. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 12, or as desired by class. Two unit-hours credit. Professor SMITH.
10. Research. Professor SMITH.
11. Elementary Spanish. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 11; *M.*, *W.*, *F.*, *at* 12. Three unit-hours credit. Assistant Professor GAY.
12. Spanish Novel. *Tu.*, *Th.*, *at* 11, *and a third hour to be arranged.* One unit-hour credit. Mr. MICHELL.
13. Research in Spanish. Mr. MICHELL.
14. Elementary Italian. *M.*, *W.*, *F.*, *at* 10. One unit-hour credit. Assistant Professor GAY.
15. Italian Literature. Credit according to work. Assistant Professor GAY.

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Zoology

MR. WAGNER.

1. General Zoology. Lectures, *M., F., at* 8. *Six hours field and laboratory work.* Two unit-hours credit.
2. Entomology. Lectures; *Tu., Th., at* 8. *Six hours field and laboratory work.* Two unit-hours credit.
3. Advanced Zoology and Research. Credit according to work done.
4. Zoological Methods. Four hours per week. One unit-hour credit.

COLLEGE OF LAW

PROFESSORS GILMORE, RICHARDS, H. L. SMITH, AND WAMBAUGH (HARVARD UNIVERSITY), AND ASSISTANT PROFESSOR MOORE.

FIRST YEAR

CONTRACTS. Keener's Cases on Contracts. Eight hours a week; ten weeks. Professor SMITH.

TORTS. Ames' and Smith's Cases on Torts. Four hours a week, ten weeks. Professor GILMORE.

SECOND AND THIRD YEARS

AGENCY. Wambaugh's Cases on Agency. Four hours a week; ten weeks. Professor GILMORE.

CORPORATIONS. Smith's Cases on Corporations. Eight hours a week; first five weeks. Professor RICHARDS.

INSURANCE. Wambaugh's Cases on Insurance. Eight hours a week; second five weeks. Professor Wambaugh.

SURETYSHIP. Ames' Cases on Suretyship. Four hours a week; ten weeks. Assistant Professor MOORE.

TRUSTS. Ames' Cases on Trusts; 2nd. edition. Four hours a week; ten weeks. Assistant Professor MOORE.

COLLEGE OF ENGINEERING

Surveying

ASSOCIATE PROFESSOR L. S. SMITH; MR. OWEN, MR. E. E. PARKER, AND MR. H. A. PARKER.

1. Elementary Surveying. Hours to be fixed. Mr. OWEN.
2. Elementary Surveying. Hours to be fixed. Mr. OWEN.
3. Advanced Surveying. Hours to be fixed. Mr. OWEN.

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4. Topographic Drawing and Mapping. Hours to be fixed. Mr. OWEN.
5. Trigonometrical Survey. (Given at Portage Camp.) Associate Professor SMITH, Mr. E. E. PARKER and Mr. H. A. PARKER.

Electrical Engineering

ASSISTANT PROFESSORS SHUSTER AND WATSON; MR. PRICE, AND MR. WICKENDEN.

1. Electromagnetic Machinery.
2. Alternating Currents.
3. Illumination and Photometry.
4. Light Sources and Distribution.
5. Senior Theses.

Hydraulic Engineering

PROFESSOR MEAD, FOR CONSULTATION; ASSISTANT PROFESSOR DAVIS AND INSTRUCTORS.

1. Experimental Hydraulics. Laboratory work and assigned readings and problems.
2. Advanced Experimental Hydraulics.

Sanitary Engineering

ASSISTANT PROFESSOR DAVIS.

1. Sewage Disposal. Lectures and laboratory practice.

Steam and Gas Engineering

ASSOCIATE PROFESSOR THORKELSON; MR. CHRISTIE, AND MR. SHEALY.

1. Thermodynamics. Theory and laboratory investigations.
2. Steam Boilers. Lectures and laboratory and commercial tests.
3. Steam Engines and Steam Turbines. An advanced course.
4. Gas Engines and Gas Producers. Theory and tests.
5. Compressed Air. Theory and operation of air compressors and pneumatic tools.
6. Fuels and Lubricants used in the operation of power plants.
7. Heating and Ventilation. Lectures and laboratory tests.
8. Advanced Laboratory and Research Work, including senior theses.

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Machine Design

PROFESSOR MACK.

1. Mechanism. A study of the more important kinematic elements.
2. Machine Elements. The application of mathematical methods and strength of materials to the design of machine elements.
3. Design of Complete Machines. The student will design the complete machine and make a study of its method of manufacture.

Mechanical Drawing

PROFESSOR PHILLIPS AND ASSISTANT PROFESSOR MILLAR.

1. Elements of Drawing I.
2. Elements of Drawing II.
3. Descriptive Geometry.

Applied Mechanics

MR. WITHEY AND MR. PARKER.

1. Statics.
2. Strength of Materials.
3. Materials Laboratory. Testing and lectures.
4. Laboratory Research and senior theses.

Shop Work

SUPERINTENDENT STEEN, MR. DABNEY, MR. LOTTES, MR. PAYTON, MR. SLADKY, AND MR. WOOD.

Elementary and advanced courses in the blacksmith shop, the wood shop, and the foundry.

SUMMER COURSES FOR ARTISANS AND APPRENTICES

These courses of shop work and laboratory practice are offered for the benefit of machinists, carpenters, or sheet-metal workers; stationary, marine, or locomotive engineers; shop foremen and superintendents; superintendents of water-works, electric light plants, power stations, factories, large office and store buildings in cities, and for young men who wish to qualify themselves for such positions. The session is six weeks in length, being coincident with the Summer Session of the College of Engineering. The tuition fee is $15, to which are added small laboratory and shop fees. For circular address the Registrar.

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THE GRADUATE SCHOOL

GEORGE C. COMSTOCK, Director. Director of Washburn Observatory. Professor of Astronomy.

GENERAL STATEMENT

The University of Wisconsin is a part of the system of public instruction provided by the State, but is open to all properly qualified students without regard to state lines. The students of the Graduate School are largely from other educational institutions located in many states, although, many of them come from the University's own undergraduate departments. It is the aim of the University to offer the opportunities for advanced instruction and research to as wide a constituency as possible. No limitations are placed upon a student's freedom in research and in the expression of his conclusions upon subjects which he is prepared to treat. The University avoids all that is partisan in politics and sectarian in religion, without debarring its members from investigation and activity in any field.

ORGANIZATION

Prior to 1895 the graduate work of the University was conducted by its several departments of instruction without further cooperation than is implied in their relations to the University as a whole. The development of this work, however, led to its organization, in 1895, as a Department of Graduate Study, and in 1904 it was advanced to the status of a Graduate School, the administration of which was entrusted to a committee of the University faculty called the Administrative Committee of the Graduate School. The Chairman of this committee was in 1906 made Director of the Graduate School. He is charged with general supervision of all graduate students, and is the medium of communication between such students and the University administration. The faculty of the Graduate School includes all members of the instructional staff of the University in charge of graduate courses.

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AIMS AND METHODS

The Graduate School aims to serve the needs of young men and women of college training who desire a larger and more thorough acquaintance with the scholarship and research of the world than can be obtained in the current undergraduate courses. It seeks to awaken in the minds of capable men and women an appreciation of high scholarship, research, and the advancement of learning, to the end that they may effectively aid, not only in the promulgation of academic instruction, but also in extending the boundaries of knowledge. Although the work of the Graduate School is in large part planned with reference to the needs of those who desire to fit themselves for the higher positions in the work of education, and who as preparation for this work seek to specialize along definite lines, the opportunities of the School are open to others as well.

The University aims to give advanced instruction of a high character in each department of its Graduate School, but the scope, form, and methods of this instruction are determined independently within the several departments. Lectures, laboratories, and the seminary method are largely employed, and especial emphasis is everywhere laid upon bringing the graduate student into contact with the research problems of his department of study. To this end able students share in the investigative work of their instructors, and are encouraged to acquire the spirit as well as the methods of productive work. Provision has been made by the University for the publication under its auspices of the results of especially meritorious work of this kind, and doctor's theses of more than common merit are occasionally thus published.

CLUBS AND SOCIETIES

To promote interest in problems of scholarship and investigation, and for training in the presentation of results, numerous voluntary clubs and societies have been established by instructors and students in the Graduate School. Among these are:

THE SCIENCE CLUB,
THE CLASSICAL CLUB.
THE LANGUAGE AND LITERATURE CLUB,
THE HISTORICAL CONFERENCE,
THE FRENCH CLUB.

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THE GERMAN JOURNAL CLUB,
THE CHEMICAL CLUB,
THE BIOLOGICAL CLUB,
THE MATHEMATICAL CLUB,
THE WISCONSIN SECTION OF THE AMERICAN CHEMICAL SOCIETY,
THE UNIVERSITY OF WISCONSIN BRANCH OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS,
THE UNIVERSITY OF WISCONSIN SECTION OF THE AMERICAN ELECTROCHEMICAL SOCIETY.

The GRADUATE CLUB, while sharing in these purposes, is primarily a social organization for the promotion of acquaintance and good fellowship among graduate students and members of the faculty.

FELLOWSHIPS AND SCHOLARSHIPS

University Fellowships

For the purpose of promoting higher scholarship and research the Regents of the University have established sixteen University Fellowships of the annual value of $400 each. These are allotted to the several departments of instruction as follows:

To Political Economy, two; to History, two; to Geology and the Biological Sciences, two; to the following departments and groups of departments one each, viz.: Political Science, Sociology, Latin, Greek, German, Romance Languages, Chemistry, Physics, Mathematics and Astronomy, Philosophy and Education.

To the above should be added an endowed fellowship in English specially described upon a following page.

The following are the regulations respecting these fellowships:

1. Any fellowship to which the present regulations apply may be held by any graduate of a college of recognized standing or by anyone whose education is equivalent to that represented by a college degree. Those about to take such a degree are eligible as candidates, the regulations applying to the time of entrance upon the dut'es of the fellowship. Men and women are equally elig'ble. Preference in appointment will usually be shown to candidates who possess a competent reading knowledge of French and German.

2. Fellowsh'ps will be granted upon application only, which should be made upon a spec'al blank form furnished by the Registrar of the University; such application, with accompanying evidence of merit, attainment, and abil'ty, to be in the hands of the President before March 1st of the collegiate year preceding that during wh'ch the fellowship is to be held.

3. All fellowships will be filled each year. Fellows may be re-appointed for one additional year only.

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4. Application must be accompanied by evidence of scholarship, ability and general worthiness; such as theses (whether prepared for this or other purposes), published writings, testimonials from instructors, outline of educational course pursued, special distinctions gained and the like. Applications for reappointment should contain a full account of the work of the preceding year. Applications to receive attention, must contain a definite statement of the special studies which the applicant intends to pursue.

5. Each fellow shall pursue his studies under the direction of the professor or professors in charge of his special studies. Assignment of University services to the fellows shall be made by the President in consultation with the head of the department to which the fellow has been assigned, and the work assigned may be equivalent to one hour of teaching daily, or the supervision of laboratory work for two hours daily. It is stipulated that the holder of the Sociology fellowship shall do work at the University Settlement in Milwaukee.

6. Vacancies in fellowships, due to resignation or other cause, may be filled as they occur, at the option of the faculty.

Honorary Fellowships

The Regents have established honorary fellowships, equal in number to the regular fellowships, and filled in a similar way. These are restricted, however, to persons who have already held academic honors, such as fellowships. No compensation is attached to these positions except the remission of University fees, and no teaching service is required; but to be eligible to an honorary fellowship one must be a graduate of at least one year's standing.

The Mary M. Adams Graduate Fellowship in English

By will the late Charles Kendall Adams, formerly President of the University, conveyed the larger part of his estate to the Regents of the University for the gradual establishment of fellowships in Modern History, Greek and in the English Language and Literature. The first of these fellowships, the Mary M. Adams Graduate Fellowship in the English Language and Literature became available in the academic year 1906–07, since which time the annual amount paid to the incumbent has ranged from $450 to $500.

Graduate Scholarships

The Regents of the University maintain seventeen graduate scholarships of the value of $225 each. Two of these are designated for Economics, one for Political Science, one for European history, one for American history, and three for Engineering.

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Appointments to these scholarships are made in the same manner as appointments to fellowships, but, by special provision, authority is conferred upon the faculties of Lawrence College, of Ripon College, of Milwaukee Downer College, and of Beloit College to nominate annually to the faculty of the University of Wisconsin one member of their respective senior classes as a suitable candidate for a University scholarship. Such candidates, when duly appointed by the Regents of the University, shall be in all respects upon the same footing as other University scholars.

Through the generosity of friends of the University, there has been established the Henry Gund Graduate Scholarship in the Department of German, of the annual value of approximately $225.

All fellows and University scholars are required to pay the regular incidental fee, but are exempt from the non-resident tuition fee.

ADMISSION TO THE GRADUATE SCHOOL

Graduates from four-year courses of liberal study in any approved university or college will be admitted to the Graduate School without examination, but will not be considered as candidates for a higher degree until announcement of such candidacy has been made to the Director of the Graduate School. Each applicant for admission to the Graduate School should, in person, present his college diploma to the University Registrar, who will admit him to the University, and will furnish a statement of fees to be paid at the Regents' office. This statement serves also as a certificate of enrollment in the Graduate School, and should be presented promptly to the Director, at Room 162 University Hall, who will issue to the student an election card for presentation to the several instructors under whom he desires to study. Students already enrolled in the Graduate School should obtain from the Director an election card at or before the beginning of each semester. (For a statement of fees to be paid in the Graduate School see Index.)

ASSIGNMENT OF STUDIES

The election card should be presented first to the instructor under whom the student's principal work is to be done, designated

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his major professor, who will advise with regard both to the courses of major study and to the subordinate studies that may be combined advantageously with the major. The studies thus determined will be entered upon the election card, which must be signed by the instructor in charge of the major and endorsed with the approval of each other instructor with whom work is to be taken. The completed card should be submitted, in person, to the Director of the Graduate School as soon as possible after the opening of the semester. The student's registration is not complete until the election card has been thus submitted to and approved by the several officers above named and returned to the Director.

Graduate students are invited to confer freely with the Director of the Graduate School in all matters concerning their relations to the University.

CANDIDACY FOR DEGREES

Candidates for all higher degrees are required to make application for admission to candidacy for the proposed degree. Such application for the doctor's degree should be made to the Director of the Graduate School at least seven months prior to the date at which the examinations for the degree are to be taken, and may be made, with advantage to the student, at an earlier date. For the master's degree, application is made in connection with the election card above described.

SECOND DEGREES

The University of Wisconsin confers the following second degrees: *Master of Arts, Master of Science, Master of Philosophy, Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer.*

These degrees are conferred in accordance with the conditions set forth below, upon graduates of the University of Wisconsin and upon graduates of other institutions of learning whose training has been substantially equivalent to that represented by the baccalaureate degree of the University of Wisconsin. The University will determine this substantial equivalence of training by such methods as seem best adapted to each case, and may impose upon any candidate such additional requirements as seem

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needful and just; its judgment in this respect being determined by the actual attainments of the candidate rather than by the institution at which he has previously studied.

The degree, *Master of Arts*, is conferred upon candidates whose undergraduate work corresponds to that now leading to the degree, *Bachelor of Arts*, as conferred by the University of Wisconsin, and whose graduate studies are non-professional in character. The degree, *Master of Science* and the second degrees in engineering are respectively conferred upon candidates whose undergraduate work corresponds to that now leading to the degree, *Bachelor of Science*, as conferred by the University of Wisconsin. The degree, *Master of Philosophy* is conferred only upon those candidates who have received from the University of Wisconsin the degree of *Bachelor of Philosophy*, but such candidates may receive the M. A. degree in lieu of Ph. M. by absolving, as a supplement to their graduate work, all requirements for the B. A. degree not satisfied at the time of taking their Ph. B.

Candidacy for the above degrees is normally based upon resident study at the University, but in a considerable class of cases provision is made whereby a measure of credit is extended to work done *in absentia*. In no case, however, will a master's degree be conferred without the equivalent of one semester of resident graduate study at the University of Wisconsin.

The following regulations for the attainment of second degrees apply to all candidates in residence:

1. During a period of at least one academic year the candidate must pursue a course of graduate study characterized by definiteness of purpose and approved by the University as appropriate to that purpose and suitable in amount. Such a course includes normally from nine to twelve unit-hours of graduate work for each semester, of which at least one-half must lie in a single department. The undergraduate preparation of the candidate must be sufficient to satisfy the instructor that the advanced work may be profitably undertaken. Undergraduate courses not listed for graduate credit, may be elected in addition to the normal amount of graduate work, provided that the recommendation of the professor in charge of the student's major and the approval of the Director of the Graduate School be obtained in advance.

2. Students who during their candidacy for the master's degree are engaged in teaching, or other remunerative employment,

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will be required to devote to their studies such period longer than one year as may be designated by the Graduate Committee.

3. For students seeking to specialize in a definite line of study the preparation of a thesis may be required and, subject to the approval of the professor in charge, such thesis work may be elected by others. If elected, a typewritten copy of the completed thesis bearing the approval of the professor under whom it is taken, must be filed with the Librarian of the University on or before June 1 of the year in which the degree is to be conferred.

4. The candidate must sustain an oral examination upon the graduate work offered in support of his candidacy. Subject to the approval of the President of the University, the time and place of this examination will be determined and the examining committee appointed by the Director of the Graduate School.

Second Degrees in Engineering

The degrees, *Civil Engineer*, *Mechanical Engineer*, *Electrical Engineer* and *Chemical Engineer* will be conferred:

(a) Upon graduates of approved institutions who have completed suitable undergraduate courses and who pursue one year of advanced engineering study at the University of Wisconsin, in accordance with the rules above set forth for the attainment of second degrees.

(b) Upon graduates of the College of Engineering of the University of Wisconsin who have spent three years in professional work, at least one of which must have been in a position of responsibility, and who present a satisfactory thesis.

Second Degrees for Students in Professional Colleges

Graduates of approved institutions who are regularly enrolled in the professional colleges of this University may supplement their professional studies by work taken in the Graduate School. Upon the completion of an approved course of study they will be admitted to examination for the master's degree, to be conferred at the time of their graduation from the professional college. The course of study thus prescribed for the attainment of the master's degree may be expected, normally, to require one-third of the student's time for a period of two years.

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CANDIDATES FOR THE MASTER'S DEGREE PARTLY IN ABSENTIA

Candidates for the master's degree who are graduates of the University of Wisconsin may be permitted, by vote of the Graduate Committee, to do one-half of this work *in absentia.*

By consent of the departments concerned any person, whether a graduate of the University of Wisconsin or not, otherwise eligible to candidacy for a second degree and who has done satisfactory graduate work during one Summer Session of the University, may be admitted to candidacy for a master's degree upon the following terms:

1. The candidate must conform to all of the above regulations for candidates for the master's degree with exception of the requirement of residence for one year.

2. During a period of two consecutive years, while not in residence at the University, the candidate must pursue a course of advanced study previously arranged and approved by some department of the University. This work is designated his major study, and during two Summer sessions, in addition to the one above named, he must pursue, at the University, work in continuation of, or collateral to, this major; for example, laboratory or seminary work in the department in which the major is taken.

3. As some departments of the University do not concede the privilege of candidacy *in absentia*, the applicant for this privilege must arrange in advance with the department concerned, for its approval of the proposed work and must show that he has access to adequate facilities for its prosecution. A form showing that such arrangement has been made must be completed and filed with the Director of the Graduate School at or before the close of the first summer session of candidacy. Continuous supervision by the University cannot, in general, be given to work done *in absentia*, and its amount and character must be shown by examination at the University.

THE DOCTOR'S DEGREE

The degree of *Doctor of Philosophy* will be conferred upon successful candidates after not less than three years of graduate study, of which either the first two years or the last year

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must be spent at this University. The degree is not conferred solely as the result of faithful study extending over any prescribed period. Special attainments are required from all candidates for this degree, particularly the power of independent investigation, shown by the production of a thesis embodying original research or creative scholarship, presented with a fair degree of literary skill.

The attention of graduate students is called to the following regulations respecting candidacy for the doctor's degree.

1. Candidates for this degree are required to select as a principal line of study some definite department of knowledge, with whose entire extent they must become familiar, in general terms, and with some part of which (the one in which the thesis falls), they must acquire a detailed acquaintance. This group of studies is designated the student's major subject, and it is expected that work upon this subject will cover not less than three years of graduate study. The studies of this group may be divided among several instructors, one of whom, designated as in charge of the major, will act as the student's adviser in the selection and arrangement of topics constituting the major, and in the selection of two minor courses of study. Work in the first of these minors will ordinarily extend over a period of two years, and in the second minor over a period of one year. At least one of these minors must be taken in a department other than that in which the major lies, and no two of the three subjects may be taken in chief part under the same instructor.

2. Not later than November 1 of the academic year in which the doctor's degree is to be taken, each candidate for the degree must submit to the Graduate Committee certificates from the departments of French and German of the University of Wisconsin, showing that he possesses a sufficient reading knowledge of these languages to use them for purposes of research in his major study. All graduate students are urged to absolve this requirement at the earliest possible date.

3. Not later than November 1 of the academic year in which the degree is sought, the candidate shall file with the Director of the Graduate School his formal application for admission to candidacy, accompanied by the title of his proposed thesis, subject to future verbal amendment, and by departmental recom-

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mendation of his candidacy obtained through one of the following methods:

(a) Through a written examination conducted by the departments in which his major and first minor subjects lie and designed to test the extent of his knowledge in those fields. The questions constituting this examination and the answers, graded with respect to excellence, must be filed with the Director of the Graduate School at or before the time at which application for admission to candidacy is made.

(b) Through an oral examination of purpose and scope comparable with (a) but conducted by the departments concerned in the presence of one or more representatives of the University designated for that purpose by the Director of the Graduate School. A report upon which the examination delimiting its scope and the degree of merit shown by the candidate and signed by the examiners and by the representative above named must be filed iwth the director at or before the time at which application for admission to candidacy is made.

(c) Through the application of such other substantial tests as the department may elect. In this case a report must be filed with the Director setting forth the nature of the tests employed and the degree of merit shown by the candidate, and the report must bear the signatures of the professor in charge of the candidate's major and first minor subjects.

The several examinations and tests above prescribed will normally be held at the close of the second year of graduate study, but, with the prior approval of the Director of the Graduate School, they may be placed at any date within four months of the normal time.

When approval of a candidacy is made through either of the above designated (a) or (b), it may be accompanied by a memorandum limiting the scope of the final oral examination to a specified part of the major and first minor subjects, and may further provide for a written examination to be held immediately prior to the oral examination as a supplement to it.

The Director of the Graduate School will transmit to the Committee upon the oral examination, Rule 4, the reports and other papers filed as above prescribed for such consideration and use as the committee may desire to make of them.

4. Each candidate for the doctor's degree must sustain an

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oral examination upon his thesis and upon the general work covered by his major and minor subjects, but a special written examination upon the second minor may be substituted for the oral examination upon the recommendation of the instructor in charge.

5. A fair copy of the thesis with an abstract of the same, certified by the candidate's major professor as suitable for publication, must be submitted to the Director of the Graduate School three weeks before the final oral examination is held. The certificate of the University Librarian that he has received the printed copies of the thesis prescribed in Rule 7 will be accepted in satisfaction of this requirement. In exceptional cases, by consent of the Graduate Committee and upon the recommendation of the professor in charge of the major, the candidate for the doctor's degree may be permitted to take the general examination prior to the approval of the thesis, but the degree will not be conferred until the candidate has passed an oral examination upon the special field of his thesis, to be held when the thesis is approved.

6. Subject to the approval of the President of the University, the Director of the Graduate School will appoint an examining committee, usually composed of four persons, and will designate a time and place for the examination.

7. The successful candidate is required to put his thesis into print and to deposit *one-hundred copies* of the same in the University Library. If the thesis is printed in a journal, or as a bulletin, reprints will be accepted for the library, but these must be provided with a special cover and title page in proper thesis form. The diploma may be conferred before the thesis is printed, provided a written or typewritten copy bearing the approval of the Graduate Committee is deposited with the University Librarian, and the sum of fifty dollars is deposited with the Secretary of the Regents, as a guaranty of subsequent publication. This deposit will be refunded on presentation of the printed copies to the University Librarian within the ensuing two years but is liable to forfeiture after this period.

FEES AND EXPENSES

Graduate students, including those working under supervision *in absentia*, pay the same fees as undergraduates in the College

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of Letters and Science, save that the non-resident tuition fee is for the present fixed at fifteen dollars for graduate students. See Index, under Fees and Expenses.

COURSES FOR GRADUATES

In all of the departments of the University courses are offered for undergraduates and graduates, and in many of them, courses primarily for graduates. These courses are described under the above headings in the departments of study in which they are severally offered.

GRADUATE CIRCULAR

The special announcement of the Graduate School for 1909–10, giving detailed information concerning the school, may be obtained upon application to the Registrar of the University.

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DEGREES

CONFERRED ON COMMENCEMENT DAY, 1908

COLLEGE OF LETTERS AND SCIENCE

Bachelor of Arts

Isaac Alcuzar
Susan Naylor Armstrong
Louis Fred Augspurger
Rufus Alexander Barnes
Theodore Anton Baumeister
John William Beath
Orville Andrew Beath
Homer Herrington Benton
Harold Joslyn Besley
Burnett Orvil Bishop
Elsa Anna Bitter
Ambrose Barnum Blake
John Carl Blankenagel
Gustave Grover Blatz
*Grace Anna Bogue
William Joseph Bollenbeck
Leal Mary Boorman
Alice Julia Borresen
*Daniel Leo Brady
Adeline Albertine Breitkreutz
Alvina Mary Brennecke
Emily May Bresee
Elbert Edwin Brindley
Edna M. Brown
Florence Mary Brown
Webster A. Brown
Mary Ethel Caine
Cuba Quincey Canan
Mae Louise Carpenter
Lucina Langworthy Carr
Myra Treat Cary
Edwina Mary Casey
Morris Joseph Cashel
Charlotte Amelia Churchill
Ethel Elizabeth Churchill
Frances Ada Cleary
Cecil Leslie Clifford
Bessie Rachel Coleman
John Joseph Colignon
Helen Jennings Crawford
Alice May Currie
Audrey Amazon Davenport
*Walter Bert Davison
Robert Austin DeCou
William Thomas De Sautelle
Melvin Edison Diemer
Fred Wentworth Dohmen
Hazel Driver
Miriam Elizabeth Eastman
Cosalette Elliott
Frances Catherine Enright
Louise Ernestine Erb
Alice Evans
Gertrude Catherine Evans
Rolf Orlando Falk
Frances Faucett
Gertrude Hurford Finlen
Ernest Clinton Flick
Helen Flint
Franklin Grotewohl Floete
Raymond Baker Frost
Hans David Gaebler
Ida Marie Gangstad
Delgracia Baraba Gay
Mary Elizabeth Gay
Mabel Elma Gilkey
Nellie Elsie Gordon
Otto Washington Greubel
Jenos Greverus
Edwin Henry Grobe
Theodore Gregory Gronert
Arthur Herrmann Gruenewald

* Degree conferred since Commencement, 1908.

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Edwin Frederick Gruhl
Milton Rieto Gutsch
Elizabeth Hambrecht
Catherine Elizabeth Hayes
George Walter Hewitt
Ruby Zaidee Hildebrand
Marx Hirsch
Wilber Jacob Holcomb
Edna Dorathea Holmes
Leonore Margaret Horan
Josephine Howe
Harriet Mae Hutson
Laura Belle Jamieson
Deborah May Jenkins
Ruth Leland Jennings
Ellen Marie Jensen
Carleton Bruns Joeckel
Elizabeth Verran Joslin
Emma Jeanette Kahl
Marie Antoinette Kasten
Ethel Louisa Kirby
Arnold Ewald Knuppel
Walter Wolleben Küstermann
Warren Eugene Leaper
Van Vechten Lehmann
William Morris Leiserson
*Hattie Susan Leui
*Thomas Edwin Lewis
Caroline Gail Libby
Jeanette Marie Emily Lindstrem
†John Irving Liver
Hubert Evan Lloyd
Mary Fidelia Longfield
Herbert Alfred Losse
Sylvia Elizabeth Lounsbury
Isabella MacArthur
*Moses McDaniel
Katherine MacMurtery
Winifred Carr Macomber
Anne Dodge Martin
George Clyde Mathews
Alva Jeanette Melaas
Elizabeth Melby
Paul Mercia
Winifred Byrne Merrill
Adeline Schlaefer Messerschmidt
Jean Mills
Daisy Milward
Josephine Margretta Moe
Ethel Morrison
Hildred Daisy Moser
Ernst Muenster
John Valentine Mulany
Hettie Maria Murchison
Harold Bunce Myers
Louise Myers
Carl Ferdinand Nelson
Nora Neprud
Legare Logan Oeland
Amy Parker
Reynale Mary Parmalee
*Mark Lawrence Patterson
Josephine Angeline Peshak
Mary Grace Pilgrim
Paul David Potter
Jenner Alfred Pynch
Oscar Rademaker
Carrie Adela Rankin
Walter Arthur Rehm
Caroline Dorothea Retelstorf
Eleva May Rice
*Rhoda Henryetta Rietow
Edgar Eugene Robinson
Julius Otto Roehl
Roland Blackstone Roehr
Juliann Anna Roller
Joseph Macabee Rubin
Lewis L. Rupert
Joseph Walter Rutte
Ethel Ernestine Sabin
Anna Gunihila Saby
*William Schaffrath
Oscar Charles Schorer
Hildur Betzy Helene Schreiner
Signe Segerstrom
Walter Gresham Sexton
Geneva Frances Sheets
George Marsh Sheets
Zettie Ethel Sieb
Florence Ann Simon
Charles Forster Smith, Jr.
Maud Emily Smith
*William Harvey Smith, Jr.
Mary Leslie Spence

* Degree conferred since Commencement, 1908.
† Degree conferred in April, 1908.

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Charles William Stark
Laura Sophia Stark
Esther Aletta Stavrum
Helen Christine Steenbock
Elvira Bertha Steinfort
Willard L. Stephenson
Anna Jessamine Stevens
Elizabeth Shute Stoddard
Joseph Stoehr
Edith Dinsdale Swenson
Victor Gerhard Swenson
Florence Wills Taylor
Maude Lenore Terry
Monte Josephine Theobald
Louise Christine Thode
*Ethel May Thomas
Elizabeth Hasselle Townsend
Lent Dayton Upson
Ruth Corbett Van Slyke
Lulu Vaughan
Velma Hersey Vinal
Harry Rosewell Wahl
Louise Estelle Walker
Eugene Edwards Wallace
Jennie Belden Wallin
Minnie Adelle Walter
Lynda Marguerite Weber
Edna Grace Wenausen
Martha Robinson Wertz
Lydia Wheelock
Ethel Sylvia White
Alba Daniel Whitmore
Henry Krumsiek Wieman
Mildred Isabelle Wightman
*George Green Wilder
Walter Julius Wittich
Adah Anastasia Woffenden
Horace Wetherill Wright

COURSE IN COMMERCE

Frank Cleveland Auer
George Baxter Averill, Jr.
Roland Derry Crossman
Fred August Dittman
Fayette Herbert Elwell
John Robert Hayes
Thomas Rudolph Hefty
Frank Thomas Hickcox
Claudius Marion Hopkins
*Walter John Kemp
Emory William Krauthoefer
Pierre August Kypke
Arthur Frank Luder
*Robert Roy Lumsden
Walter Henry Meves
Herman Frederick Meyer
Percy Harold Myers
Edward James Oliver
Felix G. Rice
Raymond Parker Sanborn
Roy Edwards Schiess
Mott Thomas Slade
Rudolph Soukup
Ray Morris Stroud
Charles William Tarbox
Anthony Walvoord

Bachelor of Philosophy

Volney Goodrich Barnes
Grace Beatrice Bewick
Anthony Edward Buresh
Archie Roy Clifton
*Lydia Elizabeth Fadner
Carolyn Eleanor Gallagher
Gerhard Adam Gesell
Margaret Coral Hair
Mary Ellen Hammond
Frederick William Hilgendorf
Ada Cecile Hillemann
Myrtle Estelle Jones
Christian Joseph Kreilkamp
Lenore Leins
Alma Louise Liessmann
Edward Michael McMahon
Emy Caroline Mueller
Benjamin Albert Polzin
William Giles Russell
James William Shannon
Nellie Gertrude Steele
Leta Lucele Stevens
Velma Sylvester Stevens
*Herman William Henry Stiehm
Benjamin Charles B. Tighe
*Adelaide Elizabeth Wilke

* Degree conferred since Commencement, 1908.

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Bachelor of Science, Pharmacy Course

Raymond Louis Schulz
Nellie Antoinette Wakeman
Hermione Smith

Graduate in Pharmacy

Albert Myron Anderson
Eugene August Lueders
Carl Albert Ihk
G. Archibald Russell
Jay Idris Jones
Mattie Isabelle Whitman
Claude Campbell Luckey

COLLEGE OF ENGINEERING

Bachelor of Science

CIVIL ENGINEERING COURSE

Ellis Pitt Abbott
William Frederick Kachel
Edwin Stanton Brown
Julius Ernest Kaulfuss
Walter Charles Buetow
Tony Byron Knuth
Santiago Cerna
Herbert John Kuelling
George Stilwell Cortelyou
George Henry Lautz
John Wilbur Cunningham
Harold Allan Liver
David Claire Decker
Sigurd Gilbertson Lunde
*Gilbert Albert Diestler
William Wyman Mathews
Orville Hay Drought
†William Boyd Miller
Samuel Wallace Gage
Oscar Hermann Nelson
James Edward Gillespie
Howard Ashley Parker
Bjarne Halfdan Graff
Richard Perwien
Walter John Grodske
Arthur Herman Pitz
George Louis Gross
James Olin Reed
Frank Lewis Hague
Victor Herman Reineking
Charles Arthur Halbert
William Henry Ryan
Michael Thomas Hayes
Charles Henry Scheuer
Garret Egbert Heebink
Frederick August Schwede
Joseph William Hejda
John Rockwood Sherman
John George Hirsch
Edwin Roy Shorey
Horace Mars Holmes
Andrew Adelbert Smith
Louis Richard Howson
Hilbert Charles Wallber
Lee Harvey Huntley
Allen Bradford Whitney
Leigh Patterson Jerrard
George H. Zeisler

MECHANICAL ENGINEERING COURSE

Victor Roy Anderson
Oscar Otto Kuentz
Frank Richard Brownlee
Walter Carl Lindemann
Ragner Otolis Comer
Harry Clayton McLean
Wayland John Copp
Austin Gove Melcher
George Christian Daniells
Frank Joseph Schuler
Guy Alden Field
Otto Victor Thiele
Frank Sumner Frost
John Thomas Tierney
Frederick William Greve, Jr.
Edward Ruger Wiggins
Malcolm John Halliday
William Wippermann

* Died November 21, 1908.
† Degree conferred since Commencement, 1908.

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ELECTRICAL ENGINEERING COURSE

William Howard Beasley
Miles Wren Birkett
Albert Valentine Blatz
Clarence Oliver Brandel
Albert Israel Buchecker
Charles Loomis Byron
Arthur Lee Collins
Marion Deane Cooper
Robert Conrad Disque
Edwin Gordon Fox
Harry Hosler
Wesley Merritt Ketchum
Edwin Henry Kifer
Henry George Kislingbury
Frank Eugene Kruesi
Antony Jacob Kryzinski
Emrys J. Lloyd
Julius Henry Lokke
Henry Fred Lutze
Henry William Meyer, Jr.
Eugene Winfield Moriarty
James Duncan Morton
Fred Edward Poesler
William Joseph Platten
Gustav Adolph Reinhard
Ernest Frederic Rice
John Nicholas Rosholt
August Carl Schleifer
Ferdinand Carl Schmidt
Charles Archibald Scribner
Charles Albert Semrad
Claude Harold Shepherd
Fred Lewis Spencer
Terrill Finney Steenrod
Carl Eduard Steinfort
Fayette Amos Tibbitts
Gould Whitney Van Derzee
Fred Eugene Volk
Louis Edward Wahl
Walter Edwin Waite
Cornelius George Weber
George Washington Wehausen

CHEMICAL ENGINEERING COURSE

Edward Lascar Gross
Arthur William Hoffman
Herman Nicholas Legreid
Joseph Shapiro
John Herman Thickens

GENERAL ENGINEERING COURSE

*Herbert Louis Blankenberg
Ottomar Paul Theodore Daenitz
Walter Gordon Gibson
Edward Joseph Hawley
Chester Nels Johnson
*Carl Merriman Kehr
Harold Edwin Ketchum
*Jean Jacques Pfannestiehl
James Frederic Simpson
Sidney James Williams
Julius Fred Wolff

COLLEGE OF AGRICULTURE

Bachelor of Science in Agriculture

Albert Louis Amott
Earl Slayton Barker
*Carl Emery Billings
Dalas Stockwell Burch
Federico Felipe Cardenas
Nathaniel Elliott Carpenter
Erwin Yandell Cottingham
Bernard Wernick Hammer
George Bradbury Hill
Joseph Frank Kadonsky
Orren Lloyd-Jones
Herbert Lothe
Roy R. Marshall
Raymond Winthrop Moseley
James Brownlee Robertson
Bryant Raymond Ryall
Walter Carl Schroeder
Philip Frederic Schwenker

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Andres Macario Sevilla
Arthur George Smith
Harry Steenbock
Walter William Sylvester
Karl Johannes Theige
Harlow Leslie Walster
Wilbert Walter Weir

COLLEGE OF LAW

Bachelor of Laws

*John Franklin Baker, B. A.
*Edmund Joseph Brabant
Otto Henry Breidenbach, A. B.
William Loring Bullock, B. S.
Frank Waldo Calkins
John Collins
Lawrence Neil Conlan
Ellen Adelaide Copp, A. M., B. D.
Herbert Van Cowles, A. B.
Frank Lester Fawcett
Robert Phillips Ferry, A. B.
James Doyle Foley, A. B.
Edward Patrick Gorman
James Blain Graham, A. B.
Charles Harold Hall
Frank Howard Hannaford
Ralph Dorn Hetzel, A. B.
Martin Matthew Hueffner, A. B.
*Albert Earl James, M. A.
William Otto Kelm
Earl Loren McDougal
John Jeremiah Morgan, A. B.
Richard August Schmidt, A. B.
Maximilian Schoetz, Jr., A. B.
Anton Lawrence Smongeski
Mary Ella Thomas, A. B.
Oscar Lambertus Wolters
Louis Anton Zavitosky, A. B., A. M.

SCHOOL OF MUSIC

Graduate in Music

Hazel Viola Alford
Mary Louise Benrick
Ethel Elizabeth Churchill
Charlotte Amelia Churchill
Laura Fairchild
Isabel Monica Farnum
Bertha Miriam Fisher
Abilgail Lois Forward
Mary Frances Hall
Lillian Concordia Jonasen
Sarah Morgan
Elizabeth Cecelia O'Grady
Fannie Ruth Richmond
Maybelle Emmeline Ross
Anna Petronilla Rueth
Winifred Martha Ellen Ryan
Lula May Starks
Iola Harker Withey

HIGHER DEGREES

Master of Arts

*Adolph Ackermann, B. A., (Martin Luther College), in German.
Rolland Craten Allen, B. A., (University of Wisconsin), in Geology.
*Leon Emmons Aylsworth, B. A., (University of Nebraska), in Political Science.
John Earl Baker, Ph. B., (University of Wisconsin), in Political Science.
Mabel Josephine Bradley, B. A., (University of Wisconsin), in French.
James Miller Breckinridge, B. A., (Albion College), in Chemical Engineering.

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Benjamin Williams Bridgman, Ph. B., (University of Wisconsin), in Physics.

John Coleman, B. A., (Western University of Pennsylvania), in Political Economy.

Guy Henry Cox, B. S., (Northwestern University), in Geology.

*Roy Emerson Curtis, B. A., (Nebraska Wesleyan University), in Political Science.

Julia Anna Flisch, M. A., (University of Georgia), in History.

Ethel Harned Gauvran, B. A., (Adelphi College), in English.

Emma Louise Glenz, B. A., (University of Wisconsin), in German.

*Thomas Victor Goodrich, B. A., (University of Nebraska), in History and Political Science.

James Sheldon Griffin, B. A., (Eureka College), in French.

Emil Frederick Hacker, B. A., (University of Wisconsin), in French.

Francis Todd H'Doubler, B. A., (University of Wisconsin), in Mathematics.

Ernest Alexander Heilman, B. A., (University of Minnesota), in German.

Louis Rowell Herrick, B. S., (Amherst College), in French.

*Edward Olaf Holty, B. L., (University of Wisconsin), in European History.

*Frederick Homburg, B. S., (University of Cincinnati), in Chemistry.

Earnest Albert Hooton, B. A., (Lawrence University), in Latin.

David Nelson Inglis, B. A., (Milton College), in French.

Akira Izumi, B. A., (Lake Forest College), in Political Science.

*Albert Earl James, B. A., (University of Wisconsin), in Political Economy.

James Francis Kenney, B. A., (University of Wisconsin), in European History.

Mary Aberdeen Ketelle, B. A., (Hastings College), in Latin.

Philip Arnold Knowlton, B. A., (University of Wisconsin), in Philosophy.

Alfred Richard Koch, B. S., (University of Illinois), in Chemistry.

John Kostalek, B. A., (University of Wisconsin), in Chemistry.

August Charles Krey, B. A., (University of Wisconsin), in History.

August Frederick Kroesche. B. A., (German Presbyterian Theological School), in Philosophy.

Hattie Kuhns, B. A., (University of Wisconsin), in Latin.

Frank Alexander LaMotte, M. S., (University of Chicago), in Romance Languages.

George Emerson Long, B. A., (Indiana University), in Applied Electrochemistry.

Emma Octavia Lundberg, B. A., (University of Wisconsin), in English.

*William Orlando Lynch, B. A., (Indiana University), in History.

Thomas Joseph McClernan, B. A., (University of Wisconsin), in Latin.

Mary Isabel McFadden, Ph. B., (University of Wisconsin), in Education.

*Ernest Christian McKelvy. B. A., (Western Reserve University) in Chemistry.

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*Henry Christoph Martens, B. A., (University of Wisconsin), in German.
Warren Judson Mead, B. S., (University of Wisconsin), in Geology.
Louise Hamilton Murdock, B. A., (Boston University), in Political Economy.
Jane Isabel Newell, B. A., (Wellesley College), in History.
*Herman Clarence Nordlie, B. A., (Luther College), in History.
Maxwell Charles Otto, B. A., (University of Wisconsin), in Philosophy.
*Charles Maltador Purin, B. A., (University of Wisconsin), in German.
*Alzo Pierre Rosselot, B. A., (Otterbein University), in Romance Languages.
Sophie Marie Schaeubel, B. A., (Miami University), in German.
Francis Lee Schneider, B. A., (University of Wisconsin), in Hellenistic Greek.
*Clara Schuster, B. L., (University of Wisconsin), in German.
Willard Dean Shannahan, B. A., (Williams College), in Latin.
Nellie Florence Sheets, B. A., (Ohio State University), in Political Economy.
Emma Gertrude Simmons, B. A., (University of Missouri), in French.
Edwin Raymond Smith, B. A., (University of Illinois), in Mathematics.
Margaret Beaumont Stanton, B. S., (Iowa State College), in History.
Elizabeth Sumner Steele, B. L., (Smith College), in English.
Harold Steele, B. A., (University of Michigan), in Education.
*Ellen Theresa Sullivan, B. A., (Cornell University), in Botany.
David Raymond Taggarth, B. A., (Geneva College), in Political Economy.
Ernst Gottwalt Freiherr von Teubern, (University of Leipsic), in Political Science.
Fredrik Turville Thwaites, B. A., (University of Wisconsin), in Geology.
Helen Elizabeth True, B. A., (Vassar College), in History.
Mildred Ethel Vance, B. A., (Doane College), in History.
Rose May Wagner, B. A., (University of Wisconsin), in German.
Homer Andrew Watt, B. A., (Cornell University). in English.
*Charles Edmund Young, B. A., (Harvard University), in Romance Languages.
Mary Gertrude Young, B. A., (Cornell University), in History.
Edgar Herman Zobel, B. A., (Ripon College), in Chemistry.

Master of Science

James Russell Garver, B. S., (Kansas State Agricultural College), in Animal Husbandry.
Alcan Hirsch, B. A., (University of Texas), in Applied Electrochemistry.
Adren Richard Johnson, B. S., (University of Wisconsin), in Chemistry.
Edward Richard Jones, B. S., (University of Wisconsin), in Soils.
Alexander Peter MacVannel, B. S., (Ontario Agricultural College), in Agronomy.
George Alfred Olson, B. S., (University of Wisconsin), in Agricultural Chemistry.

*Degree conferred since Commencement, 1908.

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John Ostrander Shaff, B. S., (Iowa State College), in Animal Husbandry.

William Edward Tottingham, B. S., (Massachusetts Agricultural College), in Agricultural Chemistry.

Carl Zapffe, B. S., (University of Wisconsin), in Geology.

Civil Engineer

LeRoy Francis Harza, B. S., (University of Wisconsin).

William Otis Hotchkiss, B. S., (University of Wisconsin).

THESIS: Rural highways in Wisconsin.

Chemical Engineer

William Roy Mott, B. S., (University of Wisconsin).

THESIS: Electrical fixation of nitrogen.

Electrical Engineer

Frank Kellogg Brainard, B. S, (Michigan Agricultural College).

THESIS: Re-design of the transmission system of the Edison Electric Company of Southern California.

Charles Edward Carter, B. S., (University of Wisconsin).

THESIS: A series of tests on a five-hundred kilowatt steam turbine installation at the Blount street station of the Madison Gas and Electric Company.

Doctor of Philosophy

Charles Henry Ambler, M. A., ((University of West Virginia), in History and Political Science.

THESIS: Sectionalism in Virginia, 1787-1860.

*John Bertram Andrews, M. A., (Dartmouth College), in Polititcal Economy and American History.

THESIS: The American labor movement, 1863-1873.

Lawrence Wiley Burdick, M. A., (University of Wisconsin), in Greek and Latin.

THESIS: Examples of still unsettled voice usage in Thucydides.

*Alexander Edmond Cance, M. A., (University of Wisconsin), in Political Economy, Sociology, and Education.

THESIS: Economics of land tenure in Mississippi.

Guy Blandin Colburn, M. A., (Brown University), in Latin and Greek.

THESIS: Epitheta deorum et herorum Horatiana ex fontibus vel Graecis vel Latina derivata.

Alfred Newton Cook, B. L., (University of Wisconsin), in Organic and Analytical Chemistry.

THESIS: Phenyl ether and some of its derivatives.

*John Lee Coulter, M. A., (University of North Dakota), Political Economy and American History.

THESIS: Industrial History of the Valley of the Red River of the North.

Edward Joseph Filbey, B. A., (University of Wisconsin), in Greek, Latin and Comparative Philology.

THESIS: The supplementary participle in Herodotus.

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Amelia Clewley Ford, M. A., (University of Wisconsin), in History and Sociology.

THESIS: Colonial precedents for the national land system of the United States.

*Glover Dunn Hancock, M. A., (William Jewell College), in Political Economy, American History, and Sociology.

THESIS: History of the national banking system in the United States from 1863 to 1879.

Robert Wilhelm Hegner, M. S., (University of Chicago), in Etymology and Zoology.

THESIS: The early development of the germ glands of some chrysomelid beetles.

Anna Augusta Helmholz, M. A., (University of Wisconsin), in English and History.

THESIS: The social philosophy of William Morris.

*Ralph Henry Hess, M. S., (Colorado Agricultural College), in Political Economy and Political Science.

THESIS: The irrigation water right in the United States.

Clara Price Newport, B. A., (Swarthmore College), in German and French.

THESIS: Woman in the thought and work of Friedrich Hebbel.

Frederick William Oswald, Jr., M. A., (Cornell University), in German and French.

THESIS: German literature in British periodicals from 1811 through 1835.

Warren DuPré Smith, B. S., (University of Wisconsin), in Geology and Mineralogy.

THESIS: Coal deposits of Batan Island.

*Helen Laura Sumner, B. A., (Wellesley College), in Political Economy and American History.

THESIS: The labor movement in America, 1827–1837.

Charles Austin Tibbals, Jr., M. A., (University of Wisconsin), in Chemistry and Chemical Engineering.

THESIS: A study of the tellurides.

James Edward Tuthill, M. A., (University of Missouri), in History and Political Economy.

THESIS: The popes and the crusades, 1073–1198.

Charles Taylor Vorhies, B. S., (Wesleyan University), in Zoology and Botany.

THESIS: Studies on the trichoptera of Wisconsin.

*Willibald Weniger, M. A., (University of Wisconsin), in Physics, Applied Mathematics, and Physical Chemistry.

THESIS: Infra red absorption spectra.

Henry Charles Wolff, M. S., (University of Wisconsin), in Mathematics and Geology.

THESIS: The continuous plane motion of a liquid bounded by two right lines.

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HONORARY DEGREE

Doctor of Laws

Honorable James Bryce, Ambassador from Great Britain.

Frederick Belding Power, Director of the Wellcome Research Laboratories, London, England.

Calvin Milton Woodward, Dean of the School of Engineering and Architecture, Professor of Mathematics and Applied Mechanics, Washington University.

HONORS IN SPECIAL STUDIES

Melvin Edison Diemer, in Chemistry.
THESIS: An investigation of the gaseous content of Wisconsin lake waters.

Alice Evans, in Chemistry.
THESIS: Purple of Cassius.

Otto Washington Greubel, in German.
THESIS: Ein vergleich zwischen Schillers "Kabale und Liebe" und Hebbels "Maria Magdalena."

Milton Adolph Gutsch, in European History.
THESIS: The Eastern question, 1822–1842.

*Moses McDaniel, in American History.
THESIS: The Navigation of the Mississippi River, 1850–1870.

Elizabeth Melby, in American History.
THESIS: The diplomatic and economic aspects of Chinese immigration, 1868–1888.

Legare Logan Oeland, in Political Economy.
THESIS: The economic and social conditions of the mountain people of Kentucky.

Zettie Ethel Sieb, in Latin.
THESIS: The life and character of Atticus.

Mary Leslie Spence, in English.
THESIS: The relation between the Scandinavian popular tales and ballads.

Harry Steenbock, in Agricultural Chemistry.
THESIS: Artificial proteolytic digestion of corn.

Horace Wetherill Wright, in Latin.
THESIS: The daily life of a Roman gentleman as depicted in the works of Horace and Martial.

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SUMMARY OF GRADUATES

		1908.
Number of first degreees granted, 1854–1908	7212	461
Present Courses:		
Courses leading to the Degree of Bachelor of Arts, including Course in Commerce, 26, 1908	1074	230
Course for Normal School Graduates, 1898–1908	267	26
Civil Engineering Course, 1873–1908	334	48
Mechanical Engineering Course, 1876–1908	255	18
Electrical Engineering Course, 1892–1908	330	42
Chemical Engineering Course, 1903–1908	21	5
General Engineering Course, 1901–1908	64	11
Law Course, 1869–1908	1754	28
Pharmacy Course, 1884–1908	283	10
Course in Agriculture, 1878–1908	94	25
School of Music, 1898–1908	105	18
Courses discontinued:		
Ancient Classical Course, 1854–1903	470	
Modern Classical Course, 1876–1903	548	
English Course, 1887–1903	458	
Civic Historical Course, 1893–1903	383	
General Science Course, 1886–1903	722	
School of Commerce (B. L., 8; B. S., 1, 1902–1903	9	
Normal Course, 1865–1868	25	
Metallurgical Engineering Course, 1876–1896	16	
Higher Degrees on Examination, 1875–1908	628	105
Masters, 1879–1908	414	78
Engineers, 1875–1908	86	5
Doctors of Philosophy, 1892–1908	128	22

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STUDENTS

GRADUATES

FELLOWS AND SCHOLARS

Austin, Charles Burgess,
M. A., Indiana University, — *Madison.* — Fellow in Political Economy.

Bachman, Freda Marie,
M. A., Miami University, — *Genoa, O.* — Fellow in Botany.

Banning, Bernice Thornton,
B. A., Brown University, — *Providence, R. I.* — Fellow in Greek.

Breckenridge, James Miller,
M. S., University of Wisconsin, — *Jamestown, Ont., Can.* — Scholar in Chemistry.

Deming, Horace Grove,
B. S., University of Washington, — *Juneau, Alaska.* — Fellow in Chemistry.

Dexter, John Smith,
B. A., Ripon College, — *Ripon.* — Ripon College Graduate Scholar. Zoology.

Diemer, Melvin Edison,
B. A., University of Wisconsin, — *Dakota, Ill.* — Scholar in Chemistry.

Fitch, John Andrews,
B. A., Yankton College, — *Parker, S. D.* — Fellow in Political Economy.

Garton, George,
M. A., Central College, — *Madison.* — Scholar in Greek and Latin.

Gesell, Gerhard Adam,
Ph. B., University of Wisconsin — *Madison.* — Scholar in Political Economy.

Greubel, Otto Washington,
B. A., University of Wisconsin, — *Milwaukee.* — Scholar in German.

Hacker, Emil Frederick,
M. A., University of Wisconsin, — *Arcadia.* — Fellow in Romance Languages.

H'Doubler, Francis Todd,
M. A., University of Wisconsin. — *Madison.* — Fellow in Mathematics.

Hirsch Alcan,
M. S., University of Wisconsin, — *Corpus Christi, Tex.* — Honorary Fellow in Chemical Engineering.

Hirsch, John George,
B. S., University of Wiscons'n, — *Milwaukee.* — Scholar in Civil Engineering.

Hooton, Earnest Albert,
M. A., University of Wisconsin, — *Waupun.* — Fellow in Latin.

Jackson, Hartley Harrad Thompson,
B. S., Milton College, — *Milton.* — Scholar in Zoology.

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Johnson, Axel, *Alta Vista, Kan.*
M. A., Kansas University, Vogel Fellow in Sociology.
Jordan, Elijah, *Oakland City, Ind.*
M. A., Cornell University, Fellow in Philosophy.
Kirk, Charles Townsend, *Madison.*
M. A., University of Oklahoma, Fellow in Geology.
Kislingbury, Henry George, *Mineral Point.*
B. S., University of Wisconsin, Scholar in Electrical Engineering.

Lewis, Roy Milton, *Hortonville.*
B. A., Lawrence University, Lawrence University Graduate Scholar. Political Economy.

Littleton, Jesse Talbot, Jr., *Greensboro, Ala.*
M. A., Tulane University, Fellow in Physics.
McCauley, George Vest, *Perryville, Mo.*
B. S., Northwestern University, Scholar in Physics.
Manchester, Frederick Alexander, *Madison.*
M. A., University of Wisconsin, Mary M. Adams Fellow in English.

Price, Lawrence Marsden, *Madison.*
M. A., Tufts College, Henry Gund Scholar in German.
Schmitt, Bernadotte Everly, *Knoxville, Tenn.*
B. A., University of Oxford, Fellow in European History.
Smith, George Cline, *Norman, Okla.*
B. A., University of Oklahoma, Scholar in Political Science.
Stanton, Margaret Beaumont, *Ames, Ia*
M. A., University of Wisconsin, Scholar in European History.
Tabor, Edward Otto, *Scranton, Miss.*
B. A., Tulane University, Scholar in American History.
Taggart, David Raymond, *Beaver Falls, Pa.*
M. A., University of Wisconsin, Scholar in Political Economy.
Titsworth, Paul Emerson, *Alfred, N. Y.*
Ph. B., Alfred University, Fellow in German.
Trimble, William Joseph, *Spokane, Wash.*
M. A., Washington State College, Fellow in American History.
Wallace, Benjamin Bruce. *New York, N. Y.*
B. A., Macalester College, Fellow in Political Science.
White, Rhoda Mabel, *Madison.*
B. A., University of Wisconsin, Fellow in Sociology.

OTHER GRADUATES

Adams, Francis Salisbury, *Duluth, Minn.*
M. E., Cornell University, Geology.
Aldrich, Loyal Blaine, *Milwaukee.*
B. A., University of Wisconsin, Physics.
Allen, Ruth Florence, *Sturgeon Bay.*
M. A., University of Wisconsin, Botany.
Aron, Albert William, *Magnolia, Ia.*
M. A., University of Nebraska, German.

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Arzberger, Emil Godfrey, *Helenville*
Ph. B., University of Wisconsin, Botany.
Ascham, Rae Eugene, *Findlay, O.*
B. A., Ohio Northern University, Geology.
Ashmun, Margaret Eliza, *Waupaca.*
Ph. B., University of Wisconsin, English.
Aston, James, *Madison.*
B. S., University of Wisconsin, Applied Electrochemistry.
Augspurger, Louis Fred, *Sheboygan.*
B. A., University of Wisconsin, Chemistry.
Bailey, William Louis, *Gravenhurst, Ont., Can.*
M. A., Queen's University, Political Science.
Baker, Oliver Edwin, *Tiffin, O.*
M. S., Heidelberg University (Ohio),
M. A., Columbia University, Agronomy.
Barnes, Volney Goodrich, *Madison.*
Ph. B., University of Wisconsin, Physics.
Bascom, Lelia, *Madison.*
B. L., University of Wisconsin, English.
Bassett, Harry Kendall, *Madison.*
B. S., Columbia University, English.
Becher, Max Albert, *Milwaukee.*
B. A., University of Wisconsin, Geology.
Berkeley, Frances Campbell, *Morgantown, W. Va.*
M. A., Columbia University, English Literature.
Berry, Otto Carter, *Beloit.*
B. S., University of Michigan, Gas Analysis.
Bewick, Grace Beatrice, *Madison.*
Ph. B., University of Wisconsin, History.
Blake, Ambrose Barnum, *Huron, S. D.*
B. A., University of Wisconsin, Political Economy.
Blakeman, Edward William, *Madison.*
B. A., Lawrence University, Political Economy.
Boström, Paul Gottfried, *Madison.*
B. A., Ystad College, Sweden, Hebrew.
B. D., Augustana College.
Bowles, James Ten Broeck, *Madison.*
B. S., University of Michigan, Bacteriology.
Boyd, Clarence Eugene, *Spartanburg, S. C.*
M. A., University of Missouri, Latin.
Brannon, James Marshall, *Madison.*
B. A., University of Wisconsin, Botany.
Brannon, William Abbott, *Dickinson, N. D.*
B. A., University of Kansas, Agricultural Chemistry.
Brewer, Robert Kemp, *Mineral Point.*
B. A., University of Wisconsin, Physical Chemistry.
Broughton, Ray, *Evansville.*
B. A., University of Wisconsin, Political Economy.
Burnham, Marguerite Eleanor, *Madison.*
B. A., University of Wisconsin, German.

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Burrer, Karl Ormand, *Sunbury, O.*
B. S., Denison Uni ersity, Electrical Engineering.
Burton, Anna Livingston, *Livingston.*
B. S., University of Wisconsin, Botany.
Byrne, Eugene Hugh, *Baraboo.*
B. L., University of Wisconsin, European History
Campbell, Mary. *Milwaukee.*
B. L., University of Wisconsin, Sociology.
Cárdenas. Federico Felipe, *Saltillo, Coah, Mex.*
B. S. A., University of Wisconsin, Animal Husbandry.
Cary, Myra Treat, *Madison.*
B. A., University of Wisconsin, Philosophy.
Cattell, James Llewellyn, *Madison.*
B. A., Bucknell University, French.
Chaney, George Arthur, *Madison.*
M. S., Highland Park College, Mathematics.
Comings, Mary Huntington, *Eau Claire.*
B. S., Northwestern University, English.
Conrad, Sara Eugenia, *Madison.*
M. A., University of Arkansas, French.
Cool, Charles Dean, *Madison.*
M. A., Harvard University, French.
Cooper, Marion Deane, *Black River Falls.*
B. S., University of Wisconsin, Electrical Engineering.
Cooper, Walter Henry, *Whitewater.*
B. S. A., University of Wisconsin, Animal Husbandry.
Dale, Edna Pauline, *Dunlap, Mo.*
Ph. B., Drake University, Psychology.
Davies, Howell David, *Oshkosh.*
M. A., Princeton University, Hebrew and Hellenistic Greek.
Dawson, George Alfred, *Lidgerwood, N. D.*
B. A., Lake Forest College, History.
Dean, Joseph, Jr., *Madison.*
M. D., University of Illinois, Anatomy.
Dearborn, Walter Fenno, m. *Madison.*
Ph. D., Columbia University, Anatomy.
Delhl, Joseph Dwight, *Madison.*
B. A., Eureka College. German.
Delwiche, Edmond Joseph. *Ashland.*
B. S. A., University of Wisconsin, Agronomy.
Dellliston, Gilbert Ward. *Madison.*
B. A., Cornell College, Political Science.
Disque, Robert Conrad, *Madison.*
B. L., B. S., University of Wisconsin, Electrical Engineering.
Donnelly, Alice Mabel, *Madison.*
B. A., University of Michigan, Latin.
Donovan, Joseph Patrick, *Madison.*
M. D., University of Illinois, Anatomy.
DuMez. Andrew Grover. *Cashton.*
B. S., University of Wisconsin, Plant Chemistry.

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Duncalf, Fred, *Lancaster.*
B. A., Beloit College, European History.
Dunlevy, Robert Baldwin, *Madison.*
B. L., University of Wisconsin, Physical Chemistry.
Edson, Frank Aaron, *Duluth, Minn.*
B. A., University of Michigan, Geology.
Edwards, Richard Henry, *Madison.*
M. A., Yale University, Political Economy.
Ekern, Helga Maria, *Madison.*
Ph. B., University of Wisconsin, History.
Elliott, Sylvanna, *Mechanicsville, Ia.*
B. A., Cornell College, Chemistry.
Ewing, Elizabeth Learoyd, *Madison.*
B. L., Smith College, Latin.
Faust, Howard Harry, *Madison.*
B. A., University of Wisconsin, Education.
Festerling, Edward Garfield, m. *Sheboygan.*
B. A., University of Wisconsin, Physiology.
Foreman, Clarence James, *Madison.*
M. A., M. S., University of Michigan, American History.
Forsythe, William Elmer, *Granville, O.*
B. S., Denison University, Physics.
Frehafer, Mabel Kathryn, *Mt. Airy, Pa.*
B. A., Bryn Mawr University Physics.
Funchess, Marion Jacob, *Orangeburg, S. C.*
B. S., Clemson College, Soils.
Gaebler, Hans David, *Watertown.*
B. A., Northwestern University (Watertown), Philosophy.
Galland, Joseph Stanislas, *Biddeford, Me.*
B. S., University of Maine, French.
Gates, Charles Baldwin, *Milwaukee.*
Ph. M., University of Wisconsin, Physical Chemistry.
Gibbs, Albert Dewitt, *Menominee, Mich.*
Ph. B., Yale University, Agriculture.
Gochnauer, Kate Marie, *Appleton.*
Ph. B., Lawrence University, Latin.
Gray, Lewis Cecil, *Stillwater, Okla.*
M. A., William Jewell College, Political Economy.
Greve, Frederick William, Jr., *Brooklyn, N. Y.*
B. S., University of Wisconsin, Hydraulics.
Grimes, Nathan Cesna, *Madison.*
B. A., University of Michigan, Mathematics.
Gutsch, Milton Rietow, *Sheboygan.*
B. A., University of Wisconsin. History.
Hall, Edgar Albert, *Madison.*
B. A., University of Wisconsin, English.
Hall, Selma Mangold, *Madison.*
B. A., Cornell College, Miscellaneous.

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Hammond, Lester Davison, *Terre Haute, Ind.*
B. A., University of Indiana, Chemistry.
Harris, Thomas Luther, *Waverly, Ill.*
M. A., Ohio State University, Agriculture.
Hayden, Estelle Mary, *Sun Prairie.*
M. L., University of Wisconsin, English Literature.
Heil, Herman Gustavus, *Chicago, Ill.*
Ph. B., University of Chicago, Physics.
Heilman, Ernest Alexander, *Redwood Falls, Minn.*
M. A., University of Wisconsin, German Philology.
Herrick, Louis Rowell, *Madison.*
M. A., University of Wisconsin, Romance Philology.
Hibbard, Carlisle V., *Janesville.*
B. S., University of Wisconsin, Political Science.
Hickman, Mary Avis, *Jamestown, N. D.*
M. A., De Pauw University, Botany.
Higson, Charles Roy, *Salt Lake City, Utah.*
B. S., University of Wisconsin, *Electrical Engineering.*
Hill, Charles Warren, *Madison.*
M. A., University of Wisconsin, Inorganic Chemistry.
Hill, George Bradbury, *Milwaukee.*
B. S., University of Wisconsin, Political Economy.
Hockett, Homer C., *Fayette, Mo.*
B. L., University of Wisconsin, American History.
Hoerger, Benjamin George, *Fairbault, Minn.*
B. A., University of Minnesota, German Literature.
Holt, Harris Hazelton, *West Rutland, Vt.*
B. A., Oxford University, European History.
Hornbeck, Stanley Kuhl, *Denver, Colo.*
B. A., Oxford University, Political Science.
Hornbrook, Earle Cracraft, *Elm Grove, W. Va.*
B. S., New Mexico Agricultural College, Structural Engineering.
Howe, Josephine, *Meadville, Pa.*
B. A., University of Wisconsin, History.
Huddle, Wiley Jerome, *Madison.*
M. A., Indiana University, Chemical Engineering.
Huels, Frederick William, *Madison.*
B. S., University of Wisconsin, Steam Engineering.
Hutchinson, Bessie Bell, *Mineral Point.*
B. L., Northwestern University. English Literature.
Inglis, David Nelson, *Milton.*
M. A., University of Wisconsin, French.
Jahns, Louise Marie, *Milwaukee.*
B. A., University of Wisconsin. Soils.
Jahr, Marvin Edward, *Neillsville.*
B. A., University of Wisconsin. Soils and Drainage.
Jandre, Julius August, *Madison.*
B. A., German Wallace College, Hebrew.
Johansson, Emanuel Aaron, *Ockelbo, Sweden.*
B. A., Bethany College,

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B. D., Chicago Theological Seminary. — American History.
Jolivette, Hally Delilia Mary, — *La Crosse.*
B. A., University of Wisconsin, — Botany.
Jones, Edward Richard, — *Madison.*
M. S., University of Wisconsin. — Hydraulic Engineering.
Kay, Harry Max, — *Chicago, Ill.*
M. D., Chicago Medical College, — Pathology.
Kirshman, John Emmett, — *Jamestown, Mo.*
Ph. M., Syracuse University, — German Philology.
Kissling Arthur Charles, — *Milwaukee.*
B. A., University of Wisconsin. — Anatomy.
Klein, David, — *Chicago, Ill.*
M. A., University of Illinois, — Physical Chemistry.
Koch, Alfred Richard, — *Alton, Ill.*
M. A., University of Wisconsin, — Physical Chemistry.
Koenig, Alfred Edward, — *Howard Lake, Minn.*
B. A., Macalester College, — Physics.
Koenig, Ruby, — *Two Rivers.*
B. L., Milwaukee Downer College, — German.
Kowalke, Otto Louis, — *South Kaukauna.*
B. S., University of Wisconsin, — Chemical Engineering
Krauskopf, Francis Craig, — *Madison.*
M. A. University of Wisconsin, — Physical Chemistry.
Kroesche, August Christ Frederick, — *Madison.*
M. A., University of Wisconsin, — Philosophy.
Lehmkuhl, William John, — *Preston, Ia.*
B. A., Wartburg College, — German.
Leiserson, William Morris, — *Madison.*
B. A., University of Wisconsin, — Political Economy.
Lescohier, Don Divance, — *Madison.*
M. A., Albion College, — Political Economy.
Long, Carl Cleveland, — *Neodesha, Kan.*
B. S., Kansas State Agricultural College, — Electrical Engineering.
Lowrie, Selden Gale, — *Madison.*
M. A., University of Illinois, — Political Science.
Lunn, William Meadors, — *Timmonsville, S. C.*
B. S., Clemson Agricultural College, — Agronomy.
Lutman, Benjamin Franklin, — *Joplin, Mo.*
B. A., University of Missouri, — Botany.
Lyman, Rollo Lu Verne, — *Madison.*
B. A., Harvard College, — Education.
McBride, Russell S., — *Minneapolis, Minn.*
B. S., University of Minnesota, — Chemistry.
McDaniel, Alonzo Simpson, — *Madison.*
M. A., University of Wisconsin, — Physical Chemistry.
MacGill, Caroline Elizabeth, — *Watertown, N. Y.*
B. A., Cornell University, — Political Economy.
McGregor, Elizabeth Bowman, — *Platteville.*
B. A., University of Wisconsin, — Latin.
McKitrick, Reuben, — *Madison.*
B. A., Oklahoma University. — Political Economy.

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March, Herman William, *Ocheyedan, Ia.*
M. A., University of Michigan, Mathematics.
Martin, Daisy May, *La Cygne, Kan.*
B. A., Kansas State Normal School, English.
Mathews, George Clyde, *Madison.*
B. A., University of Wisconsin, Political Science.
Maurer, Heinrich Hermann, *Madison.*
B. A., University of Wisconsin, American History.
Meek, Walter Joseph, *Madison.*
B. A., University of Kansas, Physiology.
Merica, Paul Dyer, *Laramie, Wyo.*
B. A., University of Wisconsin, Physics.
Merrell, George Clark, *Ripon.*
B. A., Ripon College, Civil Engineering.
Miller, Arthur Herbert, *West Salem.*
B. S., University of Wisconsin, Mechanics.
Milward, James Garfield, *Madison.*
B. S. A., University of Wisconsin, Horticulture.
Moore, Henelia M. W., *Madison.*
B. A., University of Kansas, Political Economy.
Moseley, Raymond Winthrop, *Madison*
B. S. A., University of Wisconsin, Horticulture.
Moser, Hildred Daisy, *Madison.*
B. A., University of Wisconsin, Miscellaneous.
Mott, William Roy, *Decorah, Ia.*
Ch. E., University of Wisconsin, Chemistry.
Muenzinger, Karl Fridrich, *Madison.*
B. A., University of Texas, German.
Napier, John McGuire, *Blenheim, S. C.*
B. S., Clemson Agricultural College, Agronomy.
Nelson, Aaron Louis, *Brookings, S. D.*
B. S., South Dakota State College of Agriculture and Mechanic Arts, Electrical Engineering.
Nelson, Oliver Otto M., *Madison.*
B. A., University of Wisconsin, Anatomy.
Nickels, Charles Burton, *Toledo, O.*
B. A., Denison University, Political Economy.
Notz, William Frederick, *Watertown.*
M. A., University of Wisconsin, Hebrew.
Olsen, Nils Andreas, *Herscher, Ill.*
B. A., Luther College, European History.
Orvis, Mary Burchard, *Madison.*
B. A., University of Wisconsin, Political Economy.
Otto, Maxwell Charles, *Wheeling, W. Va*
M. A., University of Wisconsin, Philosophy.
Owen, Emily Pratt, *Madison.*
B. A., Smith College, Spanish.
Owen, Ralph Albert, *Watertown*
B. A., Northwestern University, (Watertown), English.

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Parkinson, Henry Gray, *Madison.*
B. A., University of Wisconsin, American History.
Plagge, Herbert John, *Barrington, Ill.*
B. S., Northwestern University, Physics.
Platten, William Joseph, *Green Bay.*
B. S., University of Wisconsin, Electrical Engineering.
Rasmussen, Peter, *Webster, Minn.*
B. S., Carleton College, Political Economy.
Richards, Aute, *Lawrence, Kan.*
B. A., University of Kansas, Zoology.
Rigden, Effie Josephine, *Oakland, Cal.*
M. S., University of California, Zoology.
Robinson, Edgar Eugene, *Oconomowoc.*
B. A., University of Wisconsin, History.
Rogers, Augustus James, Jr., *Milwaukee.*
B. S. A., University of Wisconsin, Horticulture.
Roush, Gar A., *Gas City, Ind.*
B. A., Indiana University, Chemical Engineering.
Rowe, Everett Whittemore, *Gloucester, Mass.*
B. A., Cornell University, Geology.
Runge, Lulu Lillian, *Madison.*
B. A., University of Wisconsin, Mathematics.
Ryall, Bryant Raymond, *Madison.*
B. S. A., University of Wisconsin, Horticulture.
Saby, Anna Gunhilla, *Baldwin.*
B. A., University of Wisconsin, French.
Schaeuble, Sophia Marie, *Hamilton, O.*
M. A., University of Wisconsin, German.
Schaffrath, William, *Milwaukee.*
B. A., University of Wisconsin, German.
Schulz, Raymond Louis, m. *Milwaukee.*
B. S., University of Wisconsin, Pharmaceutical Chemistry.
Scott, Jonathan French, *New Brunswick, N. J.*
M. A., Rutgers College, European History.
Secrist, Horace, *Madison.*
B. A., University of Wisconsin, Political Economy.
Shannahan, Willard Dean, *Green Island, N. Y.*
M. A., University of Wisconsin, Latin.
Shealy, Edward Marvin, *Madison.*
B. S., University of Wisconsin, Steam and Gas Engineering.
Sheets, Geneva Frances, *Madison.*
B. A., University of Wisconsin, French.
Sheets, George Marsh, *Madison.*
B. A., University of Wisconsin, Political Science.
Simpson, Thomas Marshall, *Madison.*
B. A., Harvard University, Mathematics.
Smith, Edwin Raymond, *Madison.*
M. A., University of Wisconsin, Mathematics.
Smythe, Edwin Willis, *Madison.*
B. A., University of Wisconsin, Engineering.

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Steenbock, Harry, *Madison.*
B. S. A., University of Wisconsin, Chemistry.
Steidtmann, Edward, *Madison.*
M. A., University of Wisconsin, Geology.
Steve, William Frederick, *Madison.*
Ph. B., University of Wisconsin, Physics.
Stoddart, Charles William, *Madison.*
B. A., Columbia University, Chemistry.
Street, Ida Maria, *Milwaukee.*
M. A., University of Michigan, English Literature.
Strong, Russell James Cleary, *Beloit.*
B. A., Beloit College, Bacteriology.
Surrey, Nancy Maria Miller, *Madison.*
B. S., University of Chicago, American History.
Sutherland, Margaret, *Eau Claire.*
Ph. M., University of Wisconsin, English.
Switzer, Le Roy Victor, *Eglon, Ind.*
B. A., Ohio Northern University, English Literature.
Taylor, Archibald Wellington, *Stromsburg, Neb.*
B. A., Doane College, Political Economy.
Terry, Earle Melvin, *Madison.*
M. A., University of Wisconsin, Physics.
Thompson, Claude Francis, *Sheboygan*
B. S., Ottawa University, Animal Husbandry.
Titsworth, Waldo Alberti, *New Brunswick, N. J*
M. A., Alfred University, Physics.
Tomimoto, Shigeru, *Osaka, Japan.*
B. A., Waseda University, Political Economy.
Upson, Lent Dayton, *Rockford, Ill.*
B. A., University of Wisconsin, Political Science.
Valentine, James Alden, *Minneapolis, Minn.*
B. A., Yale University, Agriculture.
Van Horn, Jesse Lower, *Madison.*
B. S., Ohio Wesleyan University, Physics.
Wahl, Harry Roswell, m, *Stratford.*
B. A., University of Wisconsin, Anatomy.
Wakeman, Nellie Antoinette, *Madison.*
B. S., University of Wisconsin. Plant Chemistry.
Watt, Homer Andrew, *Wilkesbarre, Pa.*
M. A., University of Wisconsin. English.
Weber, August William, *Madison.*
Ph. M., University of Wisconsin. Education.
Westcott, George Rockwell, *Brookings, S. D.*
B. S., University of South Dakota Hydraulic Engineering.
Wheelwright, Orville William, *Belleville.*
B. A., University of Wisconsin, Geology.
White, Alfred Gary, *Sharon.*
B. A., Lawrence University, Political Economy.

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Whyte, Effie Margaret,	*Watertown.*
B. A., University of Wisconsin,	German.
Wilcox, Wendell Garrett,	*Spencerport, N. Y.*
Ph. M., Syracuse University,	Physical Chemistry.
Wilson, Moreley Evans,	*Paris, Ont., Can.*
B. A., University of Toronto,	Geology.
Wolesensky, Edward,	*Madison.*
M. A., University of Wisconsin,	Inorganic Chemistry.
Woo, Nae Tsung,	*Chow Chian Chilsiang, China.*
B. S., University of California,	Political Economy.
Wrench, Jesse Erwin,	*Brooklyn, N. Y.*
B. A., Cornell University,	Medieval History.
Wright, Colin Wilson, Jr., l,	*Monroe.*
B. A., University of Wisconsin,	United States History.
Wright, William Harmon,	*Madison.*
B. S., Purdue University,	Agricultural Bacteriology.
Yoshida, Yosaburo,	*Omi, Japan.*
B. S., Waseda University,	Political Economy.
Young, Earle Burdett,	*Ackley, Ia.*
Ph. B., Coe College,	Physics.
Zimmerman, Clarence Irving,	*Milwaukee.*
B. S., University of Wisconsin,	Applied Electrochemistry.

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UNDERGRADUATES

COLLEGE OF LETTERS AND SCIENCE

SENIORS

Albers, Frances Cla k,	*Madison.*
Alford, Alice Irene,	*Madison.*
Allen, Ruth Alice,	*Lake Geneva.*
Anderson, Achsah Cornelia,	*Milwaukee.*
Baer, Edna Leola Violet,	*Hartford.*
Bailey, George Corbin,	*Sun Prairie.*
Barr, Florence Edith,	*Kenosha.*
Barry, Mary Regina,	*Oregon.*
Barry, Mary Ryan Catherine,	*Jackson, Neb.*
Bartlett, Ferdinand von Arlt,	*Milwaukee.*
Baumbach, Frederick Louis,	*Milwaukee.*
Bean, Ernest F.,	*Zearing, Ill.*
Becker, Kathryn Christina,	*Watertown.*
Bergh, Lona Irene,	*Madison.*
Bessey, John Mack, l,	*Milwaukee.*
Beye, Howard Lombard, m,	*Oak Park, Ill.*
Billings, Goodsell Barney,	*Cobb.*
Birge, Raymond Thayer,	*Troy, N. Y.*
Bissell, Orpha Lucetta,	*Hutchinson, Minn.*

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Bissell, Wayne William, m,	*Lodi.*
Black, John Donald,	*Fort Atkinson.*
Blanchard, Araminta Pearl,	*Fennimore.*
Bower, Marguerite,	*New York, N. Y.*
Bowles, Ida Huston,	*Paris, Ill.*
Boyd, Alma Marie,	*Madison.*
Bram, Hazel Ella,	*Madison.*
Brandenburg, Frederick Sarles,	*Madison.*
Bridgman, Robert White,	*Madison.*
Brophy, Norman Delroy, m,	*Moorhead, Minn.*
Buchen, Gustave William, l,	*Sheboygan.*
Burgess, Kenneth Farwell,	*Oshkosh.*
Burnham, Dorothy Marie,	*Madison.*
Burnham, Ethel Romelia,	*La Crosse.*
Butler, Anna Isabel,	*Madison.*
Butterfield, Frances Amanda,	*Moscow, Idaho.*
Cady, Grace Raymond,	*Reedsburg.*
Caradine, Elva Jane,	*Monroe.*
Carpenter, Magdalena Tower,	*Fargo, N. D.*
Castle, Sidney Lester,	*Chicago, Ill.*
Cavanaugh, Clara Elizabeth,	*Shullsburg.*
Clark, Charles Rollin,	*Madison.*
Clark, Ethel Bough,	*McGregor, Ia.*
Cochrane, Ava Luella,	*Madison.*
Coleman, Herbert Clinton,	*Lowell.*
Comstock, Amy,	*Milwaukee.*
Confer, Edna Lorene,	*Madison.*
Conrad, Elsabeth,	*Madison.*
Conway, Mayme Agnes,	*Elroy.*
Crandall, Irving Bardshar,	*Chattanooga, Tenn.*
Cronin, Clara Margaret,	*Madison.*
Cudahy, Michael Francis,	*Milwaukee.*
Culver, Harry, m,	*Appleton.*
Cunningham, Carl Jefferson,	*Chippewa Falls.*
Curtis, Martha Elizabeth,	*Madison.*
Daniells, William Nathaniel,	*Madison.*
Deniston, Luther William,	*Mazomanie.*
Desmond, James Francis,	*Madison.*
Diederich, Victor Peter, m,	*Madison.*
Dinet, Eugene Augustus,	*Joliet, Ill.*
Dixon, Raymond Ephraim,	*Kingston.*
Downing, Frederick Price,	*Watertown.*
Dunn, Anna Regina,	*Madison.*
Epstein, Dorothy Louise,	*Portage.*
Evans, Charles Floyd,	*Muscoda.*
Eyland, Clara Margaretta,	*Akron, Ia.*
Fisher, Roland Friederich, m,	*Baraboo.*
Fitch, Helen Fairfield,	*Mason City, Ia.*
Flynn, Michael Henry,	*Hartford.*

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Franke, Meta Elsie, m,	*Milwaukee.*
Frodermann, Emma,	*Milwaukee.*
Gamble, Sarah Estella,	*Moline, Ill.*
Gapen, Jane Bopeep,	*Madison.*
Gardiner, Charlotte Georgia,	*Madison.*
Gedney, Kathrene Sutherland,	*Onalaska.*
Gesley, Olive Gertrude,	*Beloit.*
Gilkey, Edna Annie,	*Oshkosh.*
Gloyer, Walter Oscar,	*Milwaukee.*
Godfrey, Rush Clayton, m,	*Lancaster.*
Goldenberger, Olivia Monona,	*Madison.*
Greene, Eunice Genevieve,	*Madison.*
Gregory, Marie,	*West De Pere.*
Griswold, Chester Arthur,	*Waukesha.*
Grover, Alice Mary,	*Madison.*
Gunther, Otto, m,	*Sheboygan.*
Gunther, Theodore John, m,	*Sheboygan.*
Hall, Lucy, m,	*Watertown.*
Haman, Jennie Emilie,	*Milwaukee.*
Handt, Carolyn Hazel,	*Fond du Lac.*
Hayes, Mae Estelle,	*Janesville.*
Hebenstreit, Jane Josephine,	*Shullsburg.*
Helmholz, Henry Albert,	*Madison.*
Henry, Alice Aline,	*Elroy.*
Heuer, Josephine,	*Madison.*
Hibbard, Clarence Addison,	*Racine.*
Higbee, Hazel Bessex,	*Madison.*
Hints, Richard Francis,	*Monticello.*
Hochstein, Irma, ,	*Milwaukee.*
Hoegh, Nanna Marie,	*Spring Grove, Minn.*
Hogan, James Mangan, l,	*Fond du Lac.*
Holmes, Arthur Thomas,	*La Crosse.*
Holmes, Emily Evelyn,	*Baldwin.*
Holston, Anna,	*Ashland.*
Homuth, Erwin Silas,	*Madison.*
Hopson, Amy Jane,	*Madison.*
Hosmer, Helen,	*Ashland.*
Hoyt, Edith Evans,	*Madison.*
Hoyt, Grace Elizabeth,	*Madison.*
Hudson, Philip Loren,	*Mazomanie.*
Hunter, Helen Katherine,	*Racine.*
Immell, Lois Constance,	*Denver, Colo.*
Jenkins, Louise,	*Chippewa Falls.*
Johnson, J. Hugo,	*Des Moines, Ia.*
Johnson, Nina,	*Kokomo, Ind.*
Juergens, Carl Henry, l,	*Madison.*
Jung, Ernst, l,	*Milwaukee.*
Kahlhamer, Alphons Edward,	*Mayville.*

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Kalmbach, Mabel Lorena,	*Sturgeon Bay.*
Kaye, Sara Elizabeth,	*Calmar, Ia.*
Kayser, Stella Otilia,	*Madison.*
Kelly, Mary Margaret,	*La Crosse.*
King, Mary Ann,	*Spring Green.*
Kirwan, Jeanne Mabel,	*Bartlesville, Okla.*
Klotz, Ralph Quad,	*Madison.*
Knight, Douglas Scotten,	*Bayfield.*
Krause, Lenore,	*Yankton, S. D.*
Krumrey, Adelaide,	*Plymouth.*
Lachmund, Clara,	*Milwaukee.*
Larson, Lewis P.,	*Superior.*
Leary, Agnes Veronica,	*Madison.*
Lewis, Eva Grace,	*Racine.*
Lewis, Isabell Meekin,	*Fond du Lac.*
Lewis, Martha Ellen,	*Madison.*
Lewis, Read,	*Oak Park, Ill.*
Lindemer, Louise Bunnell,	*Milwaukee.*
Linkfield, Hazel Frances.	*Elgin, Ill.*
Lochner, Louis Paul,	*Milwaukee.*
Longfield, Mary Ellen,	*Madison.*
Loomis, Huldah Mary,	*Boonville, N. Y.*
McConville, George Terrance,	*Fargo, N. D.*
Maher, Olive Dorothy,	*Fort Dodge, Ia.*
Maurer, Otto,	*Madison.*
Melick, Gladys Ennor,	*Dodgeville.*
Mercein, Charles Schley,	*Milwaukee.*
Meyer, Lydia Lucile,	*Milwaukee.*
Mighell, Helen,	*Lake City, Ia.*
Miller, Karl Ferdinand,	*Milwaukee.*
Moffat, Mary Elizabeth,	*Davenport, Ia.*
Monshau, Carl Eslie,	*Evansville.*
More, Allison,	*Sioux City, Ia.*
Moss, Ruth Elizabeth,	*Milwaukee.*
Moss, Theda Antoinette,	*Milwaukee.*
Murphy, Nellie Christine,	*Evanston, Ill.*
Murray, Julia Aloysius,	*Madison.*
Nelson, Olga Theresa,	*Racine.*
Neville, Clara Brooks,	*Oshkosh.*
Newcomer, Harry Sidney,	*Pittsburgh, Pa.*
Owens, Lois May,	*Wauwatosa.*
Owens, Lylia Janet,	*Madison.*
Patterson, Marian Helen,	*Glen Haven.*
Peabody, Marion Grace,	*Madison.*
Pearce, Charles Chester, l,	*Dodgeville.*
Pease, Halley Anna,	*Chicago, Ill.*
Peltier, George Leo,	*Grand Rapids.*

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Perkins, Lillian,	*Dodgeville.*
Peterson, Basil Irvin, l,	*Blair.*
Phillips, Blanche Beulah,	*Madison.*
Pomeroy, Lilla Mary,	*Oconomowoc.*
Post, Kate,	*Madison.*
Pressentin, Marie Louise,	*Madison.*
Price, Beulah May,	*Madison.*
Pugh, Laura,	*Portage.*
Putnam, May Margarette,	*Madison.*
Quarles, Henry Capron, l,	*Milwaukee.*
Rakow, Bertha Marie,	*Brandon.*
Rankin, Edward Ira,	*Ft. Atkinson.*
Rapps, Grover Herman,	*Milwaukee.*
Rayne, Mary Elizabeth,	*Madison.*
Recker, Lorraine,	*Rhinelander.*
Rice, Mary Louise,	*Lewistown, Ill.*
Riley, William Henry, m,	*Altoona.*
Roberts, Earl Price,	*Oconomowoc.*
Robertson, Arthur Hampton,	*Madison.*
Robison, Aleta,	*Oconomowoc.*
Rodabaugh, Jesse Lawrence, l,	*Williamstown, O.*
Roehm, Florence C.,	*Calumet, Mich.*
Roloff, Edna Arlisle,	*Madison.*
Rose, Floy Gladys,	*Honey Creek.*
Rosencrans, Blanche Louise,	*Kansas City, Mo.*
Ross, Thompson,	*Rensselaer, Ind.*
Rossberg-Leipnitz, Johanna,	*Milwaukee.*
Roybar, Nellie Claire,	*Madison.*
Ryan, Margaret Elizabeth,	*Waukesha.*
Sacntjen, Herman William, l,	*Madison.*
Samuels, Alex Felix,	*West Salem.*
Schuler, Margaret Mary,	*Milwaukee.*
Schulze, Bertha Johannah,	*La Crosse.*
Schwalm, Arthur Leonard,	*Madison.*
Seek, Blanche Akeley,	*Ashland.*
Shiels, Lena May,	*Madison.*
Sim, Blanche,	*Grandier, N. D.*
Simons, Dora May, m,	*Shawano.*
Simpson, Verazano Kerdolff,	*Chicago, Ill.*
Slocum, Percy Wilfrid,	*Slocum, R. I.*
Slyfield, Forrest Foster, m,	*Sheboygan.*
Smith, Carolyn Emeline,	*Ottumwa, Ia.*
Smith, Elize Miles,	*Pittsburg, Tex.*
Smith, Helen Elizabeth,	*Tomahawk.*
Smith, Jessie Clemons,	*Madison.*
Speer, Ray Philpott,	*Sanborn, Ia.*
Spellman, Lloyd Pyre,	*Kansas City, Mo.*
Staley, Forest Henry, m,	*Madison.*

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Steinfeldt, Charles Rudolph,	*West De Pere.*
Steinke, Laura Anna,	*Madison.*
Stempfel, Theodore Carl,	*Indianapolis, Ind.*
Stickney, Mary Eleanor,	*Madison.*
Stiehm, Ewald Ottowin, l,	*Johnson Creek.*
Stout, Arlow Burdette,	*Albion.*
Stover, Daniel George, l,	*Milwaukee.*
Sutherland, Harry Nicholas, m,	*Madison.*
Switzer, Lou Ethel,	*St. Charles, Ill.*
Syftestad, Anna Emelie,	*Madison.*
Sykes, Dora Louisa,	*Milton Junction.*
Tarrell, Arch LeRoy,	*Platteville.*
Taylor, Mary Katherine,	*Madison.*
Terry, Edna June,	*Madison.*
Te Selle, Clarence John, l,	*Sheboygan Falls.*
Thompson, Stith,	*Madison.*
Tiefenthaler, Leo Francis,	*Milwaukee.*
Tobenkin, Joseph,	*Madison.*
Trainor, Kate,	*Madison.*
Trump, Florence Laura,	*Reedsburg.*
Van Auken, Clarice,	*Madison.*
Van Hise, Mary Janet,	*Madison.*
Vaughan, Ione,	*Milwaukee.*
Volkmann, Hildegarde Caroline,	*Watertown.*
Watkins, Mary Elizabeth,	*Edmund.*
Wattawa, Virginia,	*Kewaunee.*
Weber, William Henry,	*Racine.*
Welch, Marian Clarke,	*Mapleton, Ia.*
Weston, Nellie Charlotte,	*Waukesha.*
Wetlaufer, Hazel,	*Oshkosh.*
Wheelock, George R.,	*Peoria, Ill.*
Whittier, James Ray, l,	*Madison.*
Wieboldt, Raymond Carl,	*Delavan.*
Wilke, Eda Martha,	*Madison.*
Wilkins, Alma Lee,	*Viroqua.*
Willett, George Henry,	*Spring Green.*
Williams, Mabel Elizabeth,	*Cobb.*
Witte, Edwin Emil,	*Watertown.*
Wohlenberg, Erma Louise,	*Holstein, Ia.*
Wright, Mary Louise,	*Madison.*
Wyman, Ella Mary,	*Viroqua.*

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Course in Commerce

Baley, Earle Francis,	*Shullsburg.*
Conley, John Albert,	*Reedsburg.*
Coorsen, Louis Arthur, l,	*Milwaukee.*
Davidson, William Ward,	*Chicago, Ill.*
Doud, Giles Budlong,	*La Crosse.*

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Dudley, Harold Mann,	*Evanston, Ill.*
Erickson, Elmer Andrew,	*Marinette.*
Fenton, Ida,	*Madison.*
Grady, Albert William, l,	*Port Washington.*
Haase, Oscar Rudolph, l,	*Milwaukee.*
Hood, Frank Gardiner,	*Madison.*
von Kaltenborn, Walter George,	*Merrill.*
Kerschensteiner, Mark Joseph,	*Jefferson.*
Langmas, Arthur Samuel,	*Sheboygan.*
Luce, Rey Vincent,	*Chilton.*
Pelton, Glenn Edgar,	*Madison.*
Pelton, Guy Meredith,	*Madison.*
Peters, Adolph Charles Edward,	*Wonewoc.*
Rector, Walter Whitney,	*Fennimore.*
Rightor, Chester Edward,	*Madison.*
Sato, Kinichi,	*Milwaukee.*
Schoenwetter, Theodore Henry,	*Juneau.*
Schwandt, Robert Henry,	*Appleton.*
Shibata, Genkwan,	*Toyama, Japan.*
Siefert, Hugo Herbert,	*Reedsburg.*
Sproesser, Jacob Weber,	*Watertown.*
Syftestad, Ole Selmer,	*Madison.*

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Course for Normal School Graduates

Ames, Merl McMain,	*Shiocton.*
Anderson, Nels Andreas,	*Chetek.*
Anderson, William Tait,	*Sturgeon Bay.*
Baker, Sarah Alice,	*Eagle.*
Buechel, Fred Anthony,	*Ellsworth, Minn.*
Cronin, Timothy Theodore,	*Oconomowoc.*
Dodge, Bernard Ogilvie,	*Madison.*
Fromm, Arthur George,	*Hamburg.*
Glanville, Verna Clara,	*Montfort.*
Gowin, Burton Enoch,	*Beloit.*
Gunderson, Nicholas,	*Ixonia.*
Herrick, Alfred James,	*Augusta.*
Huebner, Emmy Senta,	*Milwaukee.*
Karnopp, John Louis,	*Almond.*
Ketcham, Alice May,	*Plainville.*
Lange, Edward Gustavus,	*Stevens Point.*
Lyon, Harley Wesley,	*Brandon.*
Mayo, Edward Leroy,	*Eau Claire.*
Mercer, Mary Irene,	*Sandwich, Ill.*
Morey, Nellie Dexter,	*Edgerton.*
Mustain, Leland Griffin,	*Macomb, Ill.*
Neystrom, Paul Henry,	*Madison.*
Parke, Gladys,	*Stevens Point.*
Parmley, Hermann Joseph,	*Mineral Point.*
Rodewald, John Wesley,	*Kilbourn.*
St. Peter, Louis Urban,	*Oconto.*
Schwalbe, Gertrude Helen,	*Milwaukee.*

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Skuldt, Nina Helena,	*Mt. Horeb.*
Stuckert, John Frederick,	*Madison.*
Taylor, John Wills,	*Linden.*
Trautmann, William John,	*Forest Junction.*
Trott, Emil Van,	*Keokuk, Ia.*
Vantine, Lewis Ashley,	*Burlington.*
Wilson, Mrs. L. Elizabeth,	*Madison.*

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Course in Chemistry

Heise, George William,	*Milwaukee.*
Nebel, Walter,	*Madison.*
Noe, Paul William,	*Milwaukee.*
Wille, Louis William,	*Milwaukee.*

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JUNIORS

Abbott, Eveline Patience,	*Madison.*
Adams, Florence Amelia,	*Mukwonago.*
Allard, Louis William, m,	*Laurel, Mont.*
Allen, Jessie,	*Cambridge.*
Allen, Mary Louisa,	*Lake Geneva.*
Andrus, Calla Adelaide,	*Madison.*
Anthony, Angela Josephine,	*Milwaukee.*
Appel, Moses Montifore,	*Huron, S. D.*
Appleby, Hazel,	*Madison.*
Atwood, Marion John,	*Madison.*
Auerbach, Ida,	*Helena, Mont.*
Axley, Albert August, m,	*Cleveland.*
Bartlett, Walter Scott,	*Milwaukee.*
Bechtel, Leslie Andrew,	*Butte, Mont.*
Beecher, Benjamin Sanford,	*Peoria, Ill.*
Beidleman, Elisha Briggs,	*South Milwaukee.*
Bissell, Marian Orpha,	*Lodi.*
Borgman, Elizabeth Vera,	*Kewaunee.*
Bosson, Amy Goodrich,	*Calumet, Mich.*
Bradford, Ann Helen,	*Madison.*
Brandel, Harry McIlherson,	*Fort Atkinson.*
Brandt, Fredolia Eugenia,	*Watertown.*
Brasure, Eva Mae,	*Hartford.*
Breitenstein, Lilian,	*Madison.*
Brewer, John Dwight,	*Fort Atkinson.*
Brookins, Julia Louise Clarke,	*Milwaukee.*
Brunow, Walter Theodore,	*Milwaukee.*
Buchanan, Victor Sauvain,	*Madison.*
Budd, Ethel Lockwood,	*Madison.*
Bullard, Elsie Rea,	*Milwaukee.*
Byrne, Catherine Berenice,	*Madison.*
Cabeen, Ruth Holley,	*Syracuse, N. Y.*
Carey, Marie,	*Sioux City, Ia.*
Carpenter, Florence Melaine,	*Windsor.*

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Carter, Bessie Ann,	*Madison.*
Carter, Fanny Walbridge,	*Hinsdale, Ill.*
Cary, Caroline Marie,	*Madison.*
Challoner, Agnes,	*Oshkosh.*
Chao, Gwoktsai,	*Shanghai, China.*
Chaplin, Leta Lucile,	*Plymouth.*
Christoffer, Harry John,	*London.*
Cole, Mary Inez,	*Geneseo, Ill.*
Corbett, Elizabeth Frances,	*National Home.*
Crumpton, Doris Hartmann,	*Superior.*
Cutter, Helen Catherine,	*Eau Claire.*
Dahl, Edna Louise,	*Madison.*
Dake, Laurence Charles,	*Sparta.*
Davies, Avrina Bernice,	*Dixon, Ill.*
Davis, Elizabeth Mary,	*Madison.*
Davis, Helen Emma,	*Madison.*
Dinan, Alice Pearl,	*Fargo, N. D.*
Doe, Ethelyn Anna,	*Elgin, Ill.*
Donahue, Zita Veronica,	*Reedsburg.*
Donovan, Katherine Agnes,	*Madison.*
Dorney, John Alexander,	*Stevens Point.*
Duffy, Francis Ryan,	*Fond du Lac.*
Durbrow, Frances Wilson,	*Madison.*
Ellsworth, Clara Amelia,	*Barron.*
Feinauer, Bertha Katherine,	*Ashland.*
Fitch, Helen Marie,	*Sun Prairie.*
Flett, Julia Louise,	*Racine.*
Fox, Lucy Wells,	*Madison.*
Frost, Nellie Catherine,	*Almond.*
Fuhrman, Edith,	*Fond du Lac.*
Fuller, Anna Caroline,	*Madison.*
Gasser, Hubert Spencer,	*Platteville.*
Gesell, Bertha May,	*Madison.*
Gesell, Robert Albert,	*Madison.*
Geyer, Denton Loring,	*Madison.*
Glenn, Elma Gertrude,	*Lancaster.*
Gorst, Genevieve English,	*Mendota.*
Graves, Lola May,	*Madison.*
Green, William Henry,	*Ligonier, Ind.*
Griffin, Grace Margaret,	*Madison.*
Griswold, Clinton Dudley,	*West Salem.*
Gross, Lyda Leah,	*Necedah.*
Hanchett, David Scott,	*Chicago, Ill.*
Harkness, Bessie,	*Durand.*
Hart, Arthur Eugene,	*Turtle Lake.*
Hartman, Lorraine,	*Chicago, Ill.*
H'Doubler, Margaret Newell,	*Madison.*
Hean, Emma Isabel,	*Madison.*
Heddle, John Ronald,	*Madison.*
Hensey, John Louis,	*Madison.*

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Hering, Hugo Henry,	*Rockford, Ill.*
Hewitt, Irving John,	*Madison.*
Hill, Laura Frances,	*Baraboo.*
Hills, Margaret Lois,	*Marshfield.*
Hilpertshauser, Lillie Caroline,	*Sheboygan.*
Hoefer, Carrie Harrison,	*Freeport, Ill.*
Hofstetter, Grace Elizabeth,	*Lyons, Ia.*
Hollister, Lisle Johnson,	*Evansville.*
Holman, Earle Stafford,	*Deerfield.*
Hooley, Osborne Edward.	*Milwaukee.*
Hookstadt, Carl,	*Harvard, Ill.*
Hopkins, Mary Wright,	*Pueblo, Col.*
Hoskin, Alice Albert,	*Janesville.*
Houser, Hazel,	*Mondovi.*
Howe, Grace Carrier,	*Boscobel.*
Hoyt, Ralph Melvin,	*Madison.*
Hughes, Edna Mae,	*Mason City, Ia.*
Hutchison, Helen,	*Madison.*
Jensen, Robert John,	*Janesville.*
Jones, Myrtle Edith,	*Madison.*
Jones, Victoria Esther,	*Madison.*
Jostad, Barney Manley,	*West Salem.*
Kasiska, Eva Helen,	*Pocatello, Ida.*
Kasiska, Mabel Josephine,	*Pocatello, Ida.*
Kearney, Thomas Matthew, Jr.,	*Racine.*
Kennedy, Gertrude Claire,	*Highland.*
Kerr, Samuel, Jr.,	*Oak Park, Ill.*
Ketelle, Hubert,	*Lindsay.*
Kleckhefer, Meta Catherine,	*Milwaukee.*
Kindschi, Alta Ester,	*Prairie du Sac.*
Knight, Euphemia Annie,	*Bayfield.*
Konrad, Frank Charles William, m.	*Oshkosh.*
*Lalk, Edward William,	*Koshkonong.*
Larson, Nellie Eugenia,	*Kankakee, Ill.*
Lauerman, Archibald William, m,	*West Bend.*
Leach, Ada Viola,	*Hartford.*
Le Grand, Alexander John,	*Milwaukee.*
Lentzner, Florence Ida,	*Milwaukee.*
Lins, Christine Cathleen,	*Spring Green.*
Lowman, Marvin Bliss,	*Madison.*
Luhman, George,	*Belvidere, Ill.*
Lukes, Gertrude Louise,	*Sioux City, Ia.*
Lumsden, Reuben,	*Kendall.*
Lyle, Margaret Blanche,	*Madison.*
McComb, Vila Erne,	*Brillion.*
McKee, Mary Rose,	*Madison.*
McRae, Florence Edna,	*Rhinelander.*
Maiben, Frank Lucilius,	*Lancaster.*
Marcks, Kate Wilhelmina,	*Pepin.*
Marsh, Martina,	*Marshfield.*

*Died Nov. 15, 1908.

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Matson, Selma Victoria,	*Madison.*
Mead, Hazel Marguerite,	*Madison.*
Meloche, Clifford Cyrille,	*Madison.*
Merz, Aline Adeline,	*Madison.*
Meuer, William Joseph,	*Madison.*
Miller, Paul Gerard,	*Madison.*
Miller, Walter Baker,	*Denver, Col.*
Minsart, Anton,	*Green Bay.*
Morris, Paul Joseph,	*Congress Park, Ill.*
Morrison, Ralph Newton,	*Rockford, Ill.*
Mowry, Vivian,	*Milwaukee.*
Mueller, George John,	*Middleton.*
Munson, Hope Downs,	*Viroqua.*
Murley, Eva Iola,	*Shullsbury.*
Murphy, Pauline,	*Evanston, Ill.*
Naffz, Carl Francis,	*Madison.*
Needham, Maurice Hubert,	*Hinsdale, Ill.*
Nelson, Nels Theodore,	*Cambridge.*
Newman, John Robert, m,	*Madison.*
Olsen, Kenneth Gerhard,	*Stoughton.*
Owyang, Yet C.,	*Canton, China.*
Padley, Pearl Carolyn,	*Sauk City.*
Parr, Thad Cassius,	*Madison.*
Perlman, Selig,	*Bealstock, Russia.*
Peterson, Marius Smith, m,	*Milwaukee.*
Peterson, Mary Sophie,	*Kenosha.*
Pomeroy, Mabel Frances,	*Oconomowoc.*
Prescott, Kathryn Elizabeth,	*Sheboygan.*
Priest, Gladys Eva,	*Madison.*
Probert, Cynthia Pearl,	*St. Paul de Metis, Can.*
Quale, Susanna Josephine,	*Madison.*
Quinn, Lewis James,	*Waterford.*
Reardon, Una Lee,	*Rhinelander.*
Reid, Mary Elizabeth,	*Oconomowoc.*
Reinking, Erna Carolina,	*Madison.*
Rentschler, Ruby Dorothy,	*Akron, O.*
Rettig, Edith Louise,	*Monticello, Ia.*
Richards, Harold Alonzo,	*Milwaukee.*
Richardson, E. Pearl,	*Rockford, Ill.*
Richardson, Maurice Leonard, m,	*Turtle Lake.*
Rieder, Rudolph Theodore,	*Milwaukee.*
Rime, Charlotte Randina,	*Dell Rapids, S. D.*
Ripley, Lucy,	*Chicago, Ill.*
Roach, Florence,	*Fennimore.*
Robinson, Laurence Warren,	*Egan, S. D.*
Rohn, Cora Josephine,	*West Bend.*
Ruby, Taylor Eutropius,	*Madison.*
Ruedebusch, Frances,	*Mayville.*
Ruedebusch, Gretchen,	*Mayville.*

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St. Sure, Violet,	*Madison.*
Saemann, Jesse Charles,	*Adell.*
Schneider, Cora Virginia,	*Milwaukee.*
Schnuchel, Francis Albert,	*Kenosha.*
Schoenmann, Mathilde Christine,	*Spring Green.*
Schreier, Konrad Foeste,	*Sheboygan.*
Schroeder, Charlotte Anita,	*West Bend.*
Scott, Almere Louise,	*Madison.*
Seaver, Beatrice Eugenia,	*Lake Mills.*
Sellery, Gertrude,	*Chicago, Ill.*
Senton, Alberta,	*Streator, Ill.*
Shannon, Frank John,	*Oconomowoc.*
Shattuck, Francis Ermina,	*Medford.*
Shenkenberg, Etta Irene,	*Waterford.*
Shepard, Anna,	*New York, N. Y.*
Sherwood, Clara Marie,	*Necedah.*
Smith, Beulah Evelyn,	*Ashland.*
Sperle, Dina Henryetta,	*McFarland.*
Spitler, Woodhull Irwin,	*Rensselaer, Ind.*
Sprecher, Alice Adell,	*Madison.*
Stafford, Harold Stanley,	*Eau Claire.*
Stephens, Elinor,	*Chicago, Ill.*
Stetler, Pearlie,	*Madison.*
Steven, John Boardman,	*Glenwood.*
Straight, Hazel Azabah,	*Madison.*
Straube, Carl Bernhard,	*Milwaukee.*
Strong, Marjorie Gundey,	*Dodgeville.*
Sutherland, Sarah Augusta,	*Madison*
Swanson, Ada Elizabeth,	*Madison.*
Swenson, Thorborg,	*Rockford, Ill.*
Taylor, Clara Isabell,	*Taylorville, Ill.*
Taylor, Ethel Rose,	*Sioux City, Ia.*
Tearnan, Clyde Hadrian, m,	*Marshfield.*
Tearnan, Raymond Arthur, m,	*Marshfield.*
Terry, Clara Jeanette,	*Madison.*
Terry, Jessie Clare,	*Baraboo.*
Thayer, Vivian Trow,	*Madison.*
Thompson, James Stacy,	*Ligonier, Ind.*
Thompson, Lucy Bell,	*Mitchell, S. D.*
Thrasher, Sarah Ellen,	*Kewaunee, Ill.*
Tiffany, Earle Edwin,	*La Crosse.*
Tolg, Clarence Charles,	*Waukesha.*
Tormey, Mary Regina,	*Madison.*
Tredinnick, Clarence Edwin,	*Linden.*
True, Katharine,	*Baraboo.*
Tsai, Chu-tung,	*Canton, China.*
Two, Florence Stella,	*Madison.*
Underwood, Alice Browne,	*Glencoe, Ill.*
Van Vleck, Winifred Anna,	*Evansville.*
Vaughan, Jay Russell,	*Rhinelander.*

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Walbridge, Ethel Lavonne,	*Madison.*
Waterman, Lucile Byrne,	*Superior.*
Waters, Margaret Julia,	*Jackson, Neb.*
Watke, Richard Puls,	*Fond du Lac.*
Weed, Leslie Bryant,	*Milwaukee.*
Wheeler, Edith Lenora,	*New York, N. Y.*
Wheelock, Ralph Wadsworth,	*Peoria, Ill.*
Whisman, Harlan Merritt,	*Huron, S. D.*
Williams, Anna Frances,	*Madison.*
Williams, Arthur James,	*Albany.*
Williams, Frank Ernest,	*Madison.*
Winterbotham, Ralph William,	*Madison.*
Wittwer, Herman Louis,	*Monticello.*
Wolf, George Paul,	*Random.*
Wood, Grace La Vergne,	*Brandon.*
Woodard, Mary Ruth,	*Clinton Junction.*
Worthington, George Edmund,	*Madison.*
Wright, Marie Louise,	*Fort Dodge, Ia.*
Wunder, Henry Frederick,	*Shelby, Ia.*
Zillmer, Raymond Theodore,	*Milwaukee.*
Zimmerman, Herbert Frederick,	*Milwaukee.*
Zimmerman, Lillian Grace,	*Milwaukee.*

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Course in Commerce

Behnish, Charles Edward,	*Milwaukee.*
Bickel, Harold Le Roy,	*Racine.*
Brown, Frederick George,	*Oshkosh.*
Bulfin, George Thomas,	*Milwaukee.*
Coleman, James Ricketson,	*Milwaukee.*
Curtis, John Huss,	*Madison.*
Davey, Cyril Earl,	*Dodgeville.*
Eberle, George Jacquinn,	*Sheboygan.*
Egan, John Fabian,	*Ashland.*
Fisher, Edward James,	*Madison.*
Freeman, Courtney Dodge,	*Madison.*
Fuley, Harry Martin,	*Hayward.*
Gaarden, John H.,	*Spring Valley.*
Gantz, Marvin Everett,	*Eau Claire.*
Hardy, Almeron James,	*Waukesha.*
Hartley, Ralph Roswell,	*Oshkosh.*
Henke, Edward Frank,	*Lowell.*
Jacobs, Herbert Edward,	*Sawyer.*
Jamieson, Hugh Clancy,	*Poynette.*
Jencks, Moses Amos,	*Lodi.*
John, Henry Walter,	*Madison.*
King, Amos Jefferson,	*Hudson.*
Lamb, Loyd,	*La Crosse.*
Logan, Edwin Harold,	*Madison.*
Mills, George Harold,	*Lodi.*
Nash, Charles Mott,	*Grand Rapids.*

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Polzin, Arthur William,	*Madison.*
Pratt, Henry Kollock,	*Plainfield.*
Prinz, Alfred,	*Milwaukee.*
Quirk, Earl William,	*Minneapolis, Minn.*
Ryan, Eugene John,	*Monroe.*
Simpson, Jefferson Allan,	*Shullsburg.*
Springer, Benjamin Franklin,	*Milwaukee.*
Treleven, John Edward,	*Omro.*
Weber, Earl Sydney,	*London.*
Weld, Frederick Joseph,	*Rockford, Ill.*
Wilce, John Woodworth,	*Milwaukee.*
Yankoski, Dell Charles,	*Berlin.*

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Course for Normal School Graduates

Adams, Robert Warren,	*Cambria.*
Blanchard, William Oscar,	*Hilbert.*
Bump, Ruth Adaline,	*Albany.*
Bunker, Maude Ethel,	*Lodi.*
Clark, Georgiana Irene,	*Portage.*
Culver, Harold Eugene,	*Stevens Point.*
Derham, Catherine Charlena,	*Montello.*
Eller, William Henri,	*Alma.*
Ellinwood, Alice Julia,	*Utica, N. Y.*
Farrington, Hazel Elizabeth,	*Wyocena.*
Farrington, Myrtle Anna,	*Wyocena.*
Gray, Roseanna,	*Oakfield.*
Gray, William Alexander,	*Benton.*
Grindell, Donald David,	*Platteville.*
Hanrahan, Alice Katherine,	*De Kalb, Ill.*
Hurn, Ethel Alice,	*Oshkosh.*
Johnston, Julia Winnifred,	*Oak Park, Ill.*
Kleckner, Bertha Diana,	*Red Oak, Ill.*
Leffingwell, Laura Thien,	*Whitewater.*
MacDonald, Philip Walter,	*Peshtigo.*
McKenna, Alberta Jocelyn,	*Platteville.*
Mangan, Julia Maria,	*Bay City.*
Metcalf, Margaret Frances,	*Shullsburg.*
Mussehl, Frederick Otto,	*Jefferson.*
Osborne, Portia,	*Montfort.*
Peters, Carrie Marguerite,	*Long Beach, Cal.*
Phillips, Laura J.,	*Whitewater.*
Ripley, Barbara Ruby,	*Oakfield.*
Ruble, Jesse Jones,	*Platteville.*
Shillander, Arthur Alexis,	*Rugby, N. D.*
Swartz, David Lester,	*Waukesha.*
Swett, Maud,	*Milwaukee.*
Vail, Leora,	*Benton.*
Weinandy, Oliver Roman,	*Cochrane.*
Winnie, Alonzo Julius,	*Racine.*

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Wodsedalek, Jerry Edward,	*Kewaunee.*
Worthington, Fred,	*Milwaukee.*
Wright, Katharine Desire,	*Marquette, Mich.*

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Course in Chemistry

Bentzen, Frederick Whelpley,	*Warrens.*
Bugbee, Abel Ralph,	*Wausau.*
Luethge, George Caspar,	*Oshkosh.*
Nadeau, Oscar Eugene.	*Marinette.*
Neumann, John Xavier,	*New Ulm, Minn.*
Roehling, Herman,	*Milwaukee.*
Schuette, Henry August,	*Green Bay.*

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SOPHOMORES

Abendroth, Harry Gustav,	*Milwaukee.*
Acly, Claire Rogers,	*Madison.*
Allyn, Josephine,	*Madison.*
Atwood, Edward Williams,	*Delavan.*
Ayer, Mary Lucile,	*Verona.*
Babcock, Hazel,	*Kasota, Minn.*
Baenen, Harriet Carolyn,	*Green Bay.*
Bahr, Mabel Lorraine,	*Milwaukee.*
Banks, Parley Francis,	*Maple, Neb.*
Barber, Samuel Lyman,	*Springfield, Ky.*
Barr, Laurence Marshall,	*Madison.*
Batchelor, Roger Putnam,	*Milwaukee.*
Becker, Emma Wilhelmina,	*Monroe.*
Bissel, Clement William,	*Big Rapids, Mich.*
Blair, Milton Johnston,	*Chicago, Ill.*
Boerner, Herman Frederick,	*Cedarburg.*
Boettge, Cornelia Louise,	*Berlin.*
Boll, Fern Ester,	*Rice Lake.*
Borsack, Karl Kasper,	*Fond du Lac.*
Boyd, Ward Franklin,	*Marinette.*
Bradley, Otto Franc,	*Madison.*
Brandt, Rose Katherine,	*Osceola.*
Brazell, James Coleman,	*Madison.*
Brereton, Gilbert Elliot,	*Lodi.*
Brewer, Fabian Seckel,	*Chicago, Ill.*
Brill, Herman Oswald,	*Columbus.*
Brown, Bernice Stockton,	*Delair, N. J.*
Brown, Irving Henry,	*Madison.*
Brown, Jenoise,	*Oshkosh.*
Brown, Louise Withee,	*Madison.*
Brown, Timothy,	*Madison.*
Buckley, Glenna Catherine,	*Beloit.*
Bunker, Eugene Francis,	*Woodstock, Ill.*
Burnson, Anga Marie,	*Sun Prairie.*
Buth, Otto Edward,	*Hartford.*
Cady, Emile Charles,	*Kilbourn.*

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Calkins, Mildred Clementine,	*Viola.*
Carter, Fred Gay,	*Viola.*
Case, Lucy Ada,	*West Allis.*
Chase, Jewell Sperry,	*Oshkosh.*
Childs, John Lawrence,	*Eau Claire.*
Clark, Robert Peter,	*Elroy.*
Clausen, Caroline Louise,	*Clear Lake, Ia.*
Coe, Lawrence Smith,	*Barron.*
Coddington, Charles Spencer,	*Madison.*
Coldwell Valeria Geneva,	*Mazomanie.*
Collentine, Margaret Loretta,	*Argyle.*
Connor, Craig Prentice,	*Auburndale.*
Conover, Mary Stover,	*Hinsdale, Ill.*
Conron, Thomas William,	*Danville, Ill.*
Coon, Frances Catherine,	*Rhinelander.*
Coxe Gerald James.	*Whitewater.*
Cranbrook, Helen Cruce,	*Fairbault, Minn.*
Crawford, Harold Newell,	*Milwaukee.*
Crawford, Willard Goldsworthy,	*Mineral Point.*
Currie, Herbert,	*Wauwatosa.*
Dahl, Marion,	*Viroqua.*
Davis, Mildred Elizabeth,	*Oshkosh.*
*Dawson, Raymond Campbell,	*Rochester, Ind.*
Dean, James Phillip,	*Madison.*
DeBoos, Esther Ethel,	*Madison.*
Deming, Marion Hazel,	*Hammond, Ind.*
Denslaw, Raymond Albert,	*East Longmeadow, Mass.*
Dexter, Bessie Hoard,	*Madison.*
Didier, Estelle Madeline,	*Rhinelander.*
Dillman, Elsie Emma,	*Madison.*
Dobeck, Mary Julia,	*Stevens Point.*
Doe, Arthur Brittan,	*Milwaukee.*
Dunwiddie, Grace Sue,	*Monroe.*
Durbin, Margaret Jessie,	*Wauwatosa.*
Dyke, LeGrande Grandis,	*Prairie du Chien.*
Ecke, Hobert Dodo,	*Fond du Lac.*
Edge, Merceda,	*New Diggins.*
Eggener, Mathilda Elsie,	*Marinette.*
Eidmann, Herbert Walter,	*Chicago, Ill.*
Ellis, William Henry,	*Freeport, Ill.*
Eschenburg, Anita May,	*Chicago, Ill.*
Farrar, Victor John,	*Hamburg, N. Y.*
Farrel, Bess,	*Sioux City, Ia.*
Ferrar, Kathleen,	*Madison.*
Ferrar, Kayutah,	*Madison.*
Fess, Leona Marie,	*Madison.*
Fink, Hattie Josephine,	*Milwaukee.*
Fitzpatrick, Genevieve Catherine,	*Ishpeming, Mich.*
Flanagan, David Joseph,	*Welcome.*

*Died Nov. 30, 1908.

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Fletcher, Clyde Rockwell,	*Knapp.*
Flinn, Bernard William,	*Pittsfield, Ill.*
Flint, Alfred Thomas,	*Madison.*
Fordyce, Kathryn Margaret,	*West Allis.*
Frankenburger, Dorothy,	*Madison.*
Frey, Forest Henry,	*Hartford.*
Frey, Noah Joseph,	*Madison.*
Fritz, Adah Eleanor,	*Monroe.*
Froggatt, Lillian Marie,	*Middleton.*
Garling, Else,	*Mayville.*
Gath, Josephine Myrtle,	*Madison.*
Gillett, Marjorie Burnton,	*Fond du Lac.*
Gottschalk, Edwin Arthur,	*Scandinavia.*
Graham, David Benjamin,	*Freeport, Ill.*
Gross, John William,	*Milwaukee.*
Gross, Manford Stephen,	*Milwaukee.*
Habermann, Margaret Oria,	*Lodi.*
Habhegger, Margaret Barbara,	*Watertown.*
Haessler, Carl Herman,	*Milwaukee.*
Halladay, Lewise,	*Streator, Ill.*
Halls, Jay Clarence,	*Ellsworth.*
Hambrecht, Leonora,	*Madison.*
Hambrecht, Lulu Ruth,	*Madison.*
Hannan, Loretto Frances,	*Milwaukee.*
Harding, Charles Ford, Jr,	*Chicago, Ill.*
Harker, Medora Emmeline,	*Dodgeville.*
Harper, Hester Lewis Moore,	*Madison.*
Hartman, Leonie Anna,	*Madison.*
Hartman, Ralph Chapel,	*Davis, Ill.*
Hartwig, Fleurette Sophie,	*Watertown.*
Head, Margaret Louise,	*Madison.*
Heald, Robert Pinkerton,	*Oak Park, Ill.*
Hebberd, Nelle,	*La Crosse.*
Hecht, Frank Abner, Jr.,	*Chicago, Ill.*
Heidner, Albion Henry,	*West Bend.*
Heilman, Lura Fellows,	*Evansville, Ind.*
Heilman, Roman August,	*Madison.*
Hellberg, Irma Amelie,	*Milwaukee.*
Helms, Frances Marie,	*Hudson.*
Hendrickson, Olive Rosetta,	*Argyle.*
Hennessey, Helen Rockwood,	*Sioux City, Ia.*
Hessing, Grace Angeline,	*Windsor.*
Hill, Charles Lawrence,	*Indianapolis, Ind.*
Hoebel, Elsie Anna,	*Madison.*
Hoffman, Hazel Lotta,	*Mather.*
Holcombe, Florence Ethel,	*Madison.*
Holmes, Marion Helen,	*Milwaukee.*
Holum, Lois Irene,	*De Forest.*
Hover, William Tracy,	*Denver, Colo.*
Hubbel, Affa,	*Cedar Falls, Ia.*

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Hulburd, Hortense,	*Chicago, Ill.*
Ives, Sadie Brae,	*Hartford.*
Jacobs, Hester Antoinette,	*Oconomowoc.*
Jaedecke, Lillian Augusta,	*Watertown.*
James, Ada Frances,	*Sioux City, Ia.*
Jenkins, Roujet De Lisle,	*Chippewa Falls.*
Johannes, Wilhelmine Henrietta,	*Milwaukee.*
Johnson, Agnes Learned,	*Madison.*
Johnson, Edna Grace,	*Sioux Falls, S. D.*
Johnson, Justin Leroy,	*Wausau.*
Johnson, Katherine Diantha,	*Stoughton.*
Johnson, Laurie Child,	*Hudson.*
Johnson, Lloyd William,	*Augusta.*
Johnson, Margaret,	*Kokomo, Ind.*
Jones, Quincy Journey,	*Freeport, Ill.*
Jones, Sara Bennett,	*Oshkosh.*
Kamantique, Jacinto Manila,	*Imus, Cavite, P. I.*
Kayser, Esther Julia,	*Madison.*
Keats, Marion Caro,	*Milwaukee.*
Kiemle, Amelia Katherine,	*Spokane, Wash.*
Kiley, Eugene Francis,	*Hartford.*
Kimball, William Langdon,	*Superior.*
Kitchell, Gertrude,	*Topeka, Kan.*
Kleiner, Ida Louise,	*Eau Claire.*
Kleinschmidt, Henry William,	*Oshkosh.*
Knowlton, Harry Neil,	*Madison.*
Korn, Bernhard Charles,	*Milwaukee.*
Kuhns, Clarissa Augusta,	*Madison.*
Landeck, Else Frieda,	*Milwaukee.*
Landesco, Jack Amador,	*Milwaukee.*
Landsberg, Paul William,	*London, England.*
Lane, Kau Toh,	*Canton, China.*
Larsen, Milton William,	*Green Bay.*
Lea, Maud Luella,	*Madison.*
Lehmann, Frances Esther,	*Woodland.*
Lehmann, Sarah Katherine,	*Woodland.*
Lewis, Caroline Margaret,	*Madison.*
Lewis, Harmon,	*Oak Park, Ill.*
Lins, Hilda Matilda,	*Spring Green.*
Longfield, Sara Regina,	*Madison.*
Lord, Frances Marie,	*Plano, Ill.*
Lotz, Alice Muir,	*Prairie du Sac.*
Lundquist, Frances Gertrude,	*Kenosha.*
MacAdam, Ada Ormsby,	*Madison.*
McCarthy, Vere Loraine,	*Townsend, Mont.*
McComb, Arlie Mae,	*Stoughton.*
McConville, Marguerite,	*Fargo, N. D.*
McDermaid, Delyle Howard,	*Rockford, Ill.*
McDonald, James John,	*Centuria.*
McKey, Douglas Francis.	*Janesville.*

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McKinney, Perry Osgood,	*Janesville.*
McMahon, Frank Bartholemew,	*Milwaukee.*
McNair, Vera,	*Houghton, Mich.*
Manley, Irene Conway,	*Beaver Dam.*
Mann, Karl Mowry,	*Milwaukee.*
Martin, Marie Matilda,	*Green Bay.*
Martin, Marion Eliza,	*Woodland.*
Martin, Mary Annie,	*Madison.*
Martin, Patrick Henry,	*Fond du Lac.*
Martin, Ross George,	*Oregon.*
Maxon, Harriet,	*Milwaukee.*
Meiners, John Carl,	*Milwaukee.*
Meloche, Rhea Belle,	*Madison.*
Mercer, Joe Davis,	*Chicago, Ill.*
Merk, Fred,	*Milwaukee.*
Merz, Elfrieda,	*Madison.*
Metcalfe, May Oceo,	*Benton.*
Meyers, Erwin Aaron,	*Evansville.*
Mielenz, Nora May,	*Milwaukee.*
Miller, Maude,	*Windsor.*
Miner, Oliver H.,	*Madison.*
Mitchell, Ralph Kenneth,	*Milwaukee.*
Morgan, Lucy Lovisa,	*Durand.*
Morris, Hannah,	*Dodgeville.*
Morris, Harold Hulett,	*Racine.*
Mosel, Eliah Margrette,	*Madison.*
Murray, Mildred Mamie,	*Clinton.*
Mutchler, Vera Virginia,	*Madison.*
Nash, Garrett Barry,	*Milwaukee.*
Nelson, Alice Jane,	*Oconomowoc.*
Nelson, Ferne Desire,	*Oconomowoc.*
Nelson, Victor Emanuel,	*Eau Claire.*
Newell, Elizabeth Marguerite,	*Chicago, Ill.*
Nonabuck, William Louis,	*Columbus.*
Noll, Oscar Jacob,	*Milwaukee.*
Noyes, Arthur Herbert,	*Baraboo.*
Nuzum, Frank Richard,	*Janesville.*
Nye, Leland William,	*Thorp.*
Ochsner, Albert Henry,	*Chicago, Ill.*
Odegard, Sager Louis,	*Merrill.*
Ofstie, Edda Valborg,	*Eau Claire.*
O'Keefe, John Joseph,	*Portage.*
Olson, Frank Lewis,	*Union Grove.*
Opsahl, Oliver Bernhard,	*De Forest.*
Paine, Effie Clarissa,	*Milwaukee.*
Paris, Margaret Irene,	*Prairie du Chien.*
Park, Marjorie Gertrude,	*Madison.*
Partridge, Elva Edythe,	*Cross Plains.*
Peacock, Lelia Irene,	*Oconomowoc.*
Pelton, Clara M.,	*Baraboo.*
Pelton, John Gardiner,	*Waupaca.*

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Penniston, Laura Maida,	*Argyle.*
Perkins, Louise,	*Sioux City, Ia.*
Persch, Adele Marie,	*Chicago, Ill.*
Pfund, Anna,	*Madison.*
Pittard, Fay Genevieve,	*Sioux City, Ia.*
Plank, Josephine Adelia,	*Oconomowoc.*
Potts, Jennie Elizabeth,	*Waupaca.*
Proudfit, Elizabeth Ford,	*Madison.*
Quigley, William Joseph,	*Antigo.*
Rehfuss, Isidor Louis,	*La Crosse.*
Reichert, Rose,	*Madison.*
Reilly, Elizabeth Marguerite,	*Watertown.*
Rhodes, Jennie Culver,	*Esterville, Ia.*
Richards, Arch Eldredge,	*Geneva, Ill.*
Richardson, William Duncan,	*Milwaukee.*
Richmond, Ada Maud,	*La Crosse.*
Ridgway, Gladys Grace,	*Madison.*
Rietow, Anna Kurt,	*Sheboygan.*
Rogers, Dorothy,	*Milwaukee.*
Rogers, Martha Jane,	*Dayton, O.*
Rosencranz, Gertrude,	*Evansville, Ind.*
Rossberg-Leipnitz, Elizabeth,	*Louisville, Ky.*
Rutherford, William Lincoln,	*Monessen, Pa.*
Ryan, Teresa Marie,	*Lodi.*
Sage, May Lauretta,	*Madison.*
Sander, Marie Rachel,	*West Salem.*
Sasuly, Max,	*Milwaukee.*
Sauer, Verra Lillian,	*Milwaukee.*
Schmidt, Irma Nathalie,	*Wausau.*
Schmirler, Theodora Geneva,	*Boscobel.*
Schoenleber, Gretchen,	*Milwaukee.*
Schram, Helen Margaret,	*Madison.*
Schuh, Matilda Emma,	*Monroe.*
Schuldt, Alma Sophia,	*Platteville.*
Schuster, Edith Emma,	*Lodi.*
Schweppe, Elsa Nona,	*Medford.*
Scribner, Gladys Carrie,	*Fond du Lac.*
Sears, Edith Amelia,	*Madison.*
Segall, Julius,	*Superior.*
Seilstad, Lillie Emelie,	*La Crosse.*
Shapiro, Estelle Arlette,	*Medford.*
Sheafor, Jean Thomas,	*Richland Center.*
Shipley, George Abram,	*Madison.*
Sinnen, Anna Ida,	*Racine.*
Sinnen, Emily Ida,	*Racine.*
Slater, Alma May,	*Escanaba, Mich.*
Smeaton, Luella Belle,	*Milwaukee.*
Smith, Ella Mabel,	*Oconto.*
Smith, Gertrude Eveleth,	*Milwaukee.*
Smith, Grace Irene,	*Stoughton.*
Smith, Grace Marie,	*Mitchell, S. D.*

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Smith, Mabel Marion,	*Beaver Dam.*
Snell, Florence Wells	*Madison.*
Sorenson, Pauline Kathryn,	*Sturgeon Bay.*
Spohn, William Henry,	*Janesville.*
Steele, Martha Marie,	*Cottage Grove.*
Steen, Anna Corrinne,	*Madison.*
Stiles, Augusta,	*Grand Rapids, Mich.*
Stiles, Bennett Phelps,	*Sparta.*
Stiles, Frederick Bailey,	*Cherokee, Ia.*
Stone, Millie Coe,	*Reedsburg.*
Strassen, Irma Susie,	*Lyons.*
Strong, Marion Ruth,	*Lake Mills.*
Surles, Clyde Pascae,	*Milwaukee.*
Swan, Ethyl Frances,	*Madison.*
Swenholt, Edna,	*Madison.*
Talbot, Charles Homer,	*Madison.*
Taylor, Henry Sterling,	*Sioux City, Ia.*
Thieman, Maria Rebecca,	*Sheboygan.*
Thomas, John Lawson Baldwin, Jr.,	*Madison.*
Thompson, Charles Goodwin,	*Blair.*
Thompson, David Reginald,	*Poynette.*
Thue, Martin John,	*DeForest.*
Thursby, Helen Gertrude,	*Madison.*
Toebaas, Oscar Theodore,	*Iola.*
Tsu, Wen-shion,	*Soochow, China.*
Tucker, Elizabeth,	*Kewaunee, Ill.*
Tuffley, Margaret Louise,	*Boscobel.*
Twining, Phoebe Anne,	*Monroe.*
Tyrrell, Bessie Florila,	*Madison.*
Vaughn, Fay,	*Bangor.*
Viles, Edith Josephine,	*Chippewa Falls.*
Vollmer, George Arthur,	*Alma.*
Walsh, Irene Adelaide,	*Washburn.*
Warden, Charlotte Jane,	*Ottumwa, Ia.*
Weaver, John Paul,	*Madison.*
Weber, Edna Hertha,	*New Holstein.*
Wehmhoff, Gertrude Janet,	*Burlington.*
Wells, Wayland Coleman,	*Omro.*
Welsh, Lucy,	*Milwaukee.*
Welter, Leslie Longley,	*Moorhead, Minn.*
Wendels, Maria Anna,	*Baraboo.*
Whidden, Marian,	*Oak Park, Ill.*
White, Eva Parker,	*River Falls.*
Wiechers, Alma Magdalin,	*Racine.*
Wild, Harry Goetseels,	*Milwaukee.*
Wilde, Frederick Erdman Jesse,	*Milwaukee.*
Williams, Arthur Jack,	*Waukesha.*
Willis, Winifred Elizabeth,	*Lancaster.*
Winholt, Walter Fritz,	*Chicago, Ill.*
Winslow, Emily Bradley,	*Madison.*
Winter, Otto Louis,	*River Falls.*

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Wipperman, Elfrieda Hertha,	*Shawano.*
Witwen, Edna Pearl,	*Baraboo.*
Woerner, Lisette Katherine,	*Louisville, Ky.*
Worthington, Cordelia Eleanor,	*Madison.*
Wright, Rowe,	*Milwaukee.*
Yabe, Massao,	*Chibaken, Japan.*
Yorgey, Roxie Marie,	*Horicon.*
Young, Katherine Gertrude,	*Manitowoc.*
Zellmann, Anna Barbara,	*Milwaukee.*
Zillmer, Aimee Mary,	*Milwaukee.*

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Course in Commerce

Arpin, Harold Augustus,	*Grand Rapids.*
Ashmun, Clifford Samuel,	*Waupaca.*
Batz, Rupert Joseph,	*Sun Prairie.*
Burns, Edward Anthony,	*La Crosse.*
Chandler, Horace Gilmore,	*Ottumwa, Ia.*
Clark, Comillo Adams,	*Menomonie.*
Clissold, Judson Boyd,	*Morgan Park, Ill.*
Coffman, Harry Stringer,	*Madison.*
Dohmen, Erwin Joseph,	*Milwaukee.*
Draves, Henry Charles,	*Milwaukee.*
Finn, Urias James,	*River Falls.*
Glaeser, Martin Gustave,	*Sheboygan.*
Green, Robert Dickinson,	*Chicago. Ill.*
Hauck Fred,	*Hamburg.*
Johns, Charles Lester,	*Dodgeville.*
Joys, Carl, Jr.,	*Milwaukee.*
Kauffman, Jacob Lovelle,	*Madison.*
Kiefer, Walter John,	*Wausau.*
Kleinpell, Arthur Schoppenhouer,	*Cassville.*
Kleinpell, Karl Lessing,	*Cassville.*
Lilly, Lewis,	*La Crescent, Minn.*
Lloyd, Sumner Hurst,	*Chicago, Ill.*
McGrath, Charles Blair,	*Eau Claire.*
McMillen, Clifford Le Roy,	*Ft. Atkinson.*
Moy, John Benjamin,	*Mondovi.*
O'Malley, Robert Connor,	*Waunakee.*
Overholser, Leroy Horlacher,	*Sterling, Ill.*
Pheatt, Burton Maxwell,	*Milwaukee.*
Racine, Frank Warden.	*Ottumwa, Ia.*
Rees, Reginald Leigh,	*Hinckley, Ill.*
Reif, Carl William,	*Madison.*
Reyer, Will Cleveland,	*Colby.*
Rohn, Chester Ferdinand,	*Milwaukee.*
Schacht, Edwin Arthur,	*Racine.*
Schneider, Harry,	*Dubuque, Ia.*
Schuetter, Robert Louis,	*Appleton.*
Schwarting, Alvin Walter,	*Milwaukee.*
Schwenker, Calvin Floyd,	*La Crosse.*
Sexton, Charles Richard,	*Madison.*

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Sibley, Joseph Crocker, Jr.,	*Franklin, Pa.*
Stevens, Leonard Jackson,	*Tomah.*
Stolzenburg, Louis Herman,	*Edwards.*
Stoppenbach, Frank Emil,	*Jefferson.*
Thatchery, Oliver Victor,	*Escanaba, Mich.*
Thuerer, Allen Henry,	*Baraboo.*
Timbers, Michael Francis,	*Mauston.*
Tobin, Joseph Michael.	*Elkhorn.*
Wilson, Edgar Carpenter,	*Wausau.*
Wood, Arthur Bowan,	*Fonda, Ia.*
Zinke, William H.,	*Fond du Lac.*

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Course in Chemistry

Briggs, Glenn Arthur,	*Pocatello, Ida.*
Dewey, Leon Henry,	*Marshall.*
Eberle, Roger Theodore,	*Watertown.*
Geidel, Carl Diedrich,	*Brandon.*
Knight, Oliver Drake,	*River Falls.*
Ovitt, Arthur Wilkie,	*Green Lake.*
Schranck, Henry Charles, Jr.,	*Milwaukee.*
Schreier, August John,	*Milwaukee.*
Spence, Aubrey Dayton,	*Camp Point, Ill.*
Wiese, Otto,	*Madison.*
Zander, August William,	*Algoma.*

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FRESHMEN

Aberg, William John P.,	*Shell Lake.*
Albers, Edgar Harvey,	*Thiensville.*
Albertson, Phyllis.	*Boston, Mass.*
Allen, Pattie Edna,	*Billings, Mont.*
Allison, Albert Fay,	*Sioux Falls, S. D.*
Anderson, Alvin,	*Windsor.*
Anderson, Marion Suzanne,	*Milwaukee.*
Anderson. Sydney Wright,	*Chicago, Ill.*
Andressohn, John Carl,	*Milwaukee.*
Antes, Madeline Elizabeth,	*Evansville.*
Anthony, Marie Alexa,	*Milwaukee.*
Arnsdorf, Henry Gustave,	*Eau Claire.*
Atkinson, Ruth Voorhees,	*Madison.*
Austin, Edwin Charles,	*Chicago, Ill.*
Bagley, Lorna Doone,	*Madison.*
Bailey, Florence Hayden,	*Sun Prairie.*
Baker, Bernice Susan,	*Des Moines, Ia.*
Ballard, Roger Kingsley,	*Indianapolis, Ind.*
Baragwanath, Elsie Ida,	*Chicago, Ill.*
Barber, Jessie Olive,	*Rockford, Ill.*
Barker, Harold Henry,	*Sparta.*
Barkhausen, Amanda Rose,	*Green Bay.*
Barmeier, Floyd Everett,	*St. Louis, Mo.*
Barnes, Cliff Mac Farlin.	*Elkhorn.*

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Barney, Willis Wilder,	*Mauston.*
Barrett, Grace Mary,	*Wauwatosa.*
Barrett, Maude Truscott,	*Galena, Ill.*
Barrett, Stephen Austin,	*Chippewa Falls.*
Bartman, Selma Henrietta,	*Marshfield.*
Baskerville, Grace Dilla,	*Madison.*
Batz, Margaret Carmen,	*Sun Prairie.*
Baumgartner, Marie Elizabeth,	*Lancaster.*
Bechtel, Anita Else,	*Milwaukee.*
Bedford, Edgar William,	*Sheboygan.*
Benson, Ida Bertina,	*Madison.*
Bergum, Nelson Bertinus.	*De Forest.*
Bettinger, Beulah Elizabeth,	*Milwaukee.*
Birchard, Ruth.	*Omaha, Neb.*
Blanchard, Pearl Ethel,	*Colby.*
Blee, Gladys E.,	*Sandwich, Ill.*
Blenkiron, Florence Eleanor,	*Sioux City, Ia.*
Bliss, Hugh Porter,	*Madison.*
Blood, Laura Lillian,	*Kenosha.*
Blunt, Lena Pearl,	*Madison.*
Blust, Harry John,	*Sheboygan Falls.*
Blythe, Stuart Oakes,	*Washington, D. C.*
Bonsall, Opal Irene,	*Spokane, Wash.*
Bonsall, Vera Valentine.	*Spokane, Wash.*
Booth, Ella Haden,	*Milton Junction.*
Borgen, Mabel Pearl,	*Rice Lake.*
Bowen, George Hiram,	*Sioux Falls, S. D.*
Bowen, Robert Linde,	*Oshkosh.*
Brabant, Louis Joseph,	*Madison.*
Bradshaw, Ethel Belle,	*Rockford, Ill.*
Brennan, Ann Ursula,	*Fort Dodge, Ia.*
Brereton, Ruth Virginia,	*Lodi.*
Brockett, Lucile Grace,	*Madison.*
Brook, Edith Mary,	*Burlington.*
Brown, Fannie Arnetta,	*Madison.*
Brown, Helen Mariette,	*Chippewa Falls.*
Brown, Mary Abigaile,	*Madison.*
Brundage, Nellie Merina,	*Milwaukee.*
Brunner, Mary Regina,	*Sinsinawa.*
Buell, Nora,	*Burlington.*
Buhlig, Alma Emma,	*Chicago, Ill.*
Bunnell, Mary Martha,	*Grand Rapids, Mich.*
Burgard, Grace,	*Creston, Ia.*
Burke, Elsie Margaret,	*Madison.*
Burke, Leroy Thomas,	*Madison.*
Burke, Nell Ellen,	*Monroe.*
Carson, Mildred Harriet,	*Madison.*
Carter, Doris Eleanor,	*Hinsdale, Ill.*
Carville, Hazel Lyle,	*Washington, D. C.*
Cavanaugh, Leo David,	*Hartford.*
Chambers, Charles Carroll,	*Little Rock, Ark.*

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Chave, Ella Bean,	*Tomahawk.*
Clancy, Edwin Joseph,	*West Chicago, Ill.*
Clancy, Leslie Mark,	*Evanston, Ill.*
Clark, Hazel Blanche,	*Kansas City, Mo.*
Cleveland, Clarence Rugg,	*Rockford, Ill.*
Coates, Margaret Frances,	*Tea, S. D.*
Cody, Irene Marsh,	*Sturgeon Bay.*
Colignon, Constant Moreaux,	*Sturgeon Bay.*
Congdon, John Isaac,	*Palmyra.*
Cook, Lloyd Lewis,	*Lake Mills.*
Cooley, Winifred,	*Ishpeming, Mich.*
Cooper, Harold,	*Milwaukee.*
Cornell, Mary Emma,	*Elgin, Ill.*
Cotten, Ruth,	*Eau Claire.*
Crane, Clara,	*Denver, Col.*
Crane, Winifred Lucy,	*Kalispell, Mont.*
Crawford, Russell Nelson,	*Chicago, Ill.*
Cunningham, George Roger,	*Janesville.*
Currie, Jean Young,	*Milwaukee.*
Dahl, Alice Idell,	*Madison.*
Dahle, Agnes Helene,	*Mt. Horeb.*
Daley, Frank Aloysius,	*Madison.*
Danforth, Winifred Louise,	*Hinsdale, Ill.*
Davidson, James Alfred,	*Soldiers Grove.*
Davies Ruth Eaton,	*Milwaukee.*
Davis, Agnes Hopkins,	*Madison.*
Davis, Irwin Grant,	*Arcadia.*
Davis, Robert William,	*Madison.*
Deming, Edith May,	*Madison.*
Deming, Wayne Edgar,	*Marshfield.*
Demmer, Edward Uhrig,	*Milwaukee.*
Dickens, Riddell,	*Milwaukee.*
Dickinson, Ray Levi,	*La Crosse.*
Doane, Ralph Embree,	*Aurora, Ill.*
Donohoo, Dalven Leo,	*Cuba.*
Dostal, Bernard Francis,	*Milwaukee.*
Draper, Huntington Adams,	*Chicago, Ill.*
Draper, Vashti Lorraine Bradford,	*Green Bay.*
Dresbach, Glenn Ward,	*Lanark, Ill.*
Ducker, George Allison,	*Joliet, Ill.*
Dunn, Lulu Irene,	*Black River Falls.*
Dwight, Austin Walker,	*Milwaukee.*
Dykeman, Audrey,	*Streator, Ill.*
Eason, Roy James,	*Milwaukee.*
Eaton, May Catherine,	*Milwaukee.*
Eckhardt, George Harold,	*Viroqua.*
Eckstein, John William,	*Muscoda.*
Edwards, Henry Patrick,	*Dallas, Tex.*
Edwards, Merwin Guy,	*Ashland.*
Elliott, Edgar John,	*West Chicago, Ill.*
Ellsworth, Sarah Frances,	*Fredericksburg, Ia.*

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Ely, Mary Chrisholm,	*Madison.*
Emery, Hazel,	*Evansville.*
Emery, Lila,	*Northwood, Ia.*
Engeseth, Alfred John,	*De Forest.*
English, Norman Allan,	*Arcadia.*
Evans, Russell Argyle,	*Alma.*
Evans, Sara Ellen,	*Stoughton.*
Farnham, Willard Edward,	*St. Louis, Mo.*
Farnum, Clement Barnett,	*Madison.*
Farquhar, Alice Milne,	*Chicago, Ill.*
Faville, Harriet Elizabeth,	*Lake Mills.*
Feldschneider, Erwin William,	*Watertown.*
Fenn, Clarence Charles,	*Antigo.*
Findlay, Dorothy Flint,	*Norwalk, Conn.*
Finner, Fred Frank,	*Dodge.*
Flower, Dorothy,	*Madison.*
Floyd, John George,	*Terra Haute, Ind.*
Foerster, Henry Robert,	*Milwaukee.*
Ford, Mary Estelle,	*Madison.*
Ford, Stella Eudora,	*Black Earth.*
Foulkes, Marie Nuzum,	*Oregon.*
Foxwell, Daniel Donato,	*Racine.*
Frawley, Honora Margaret,	*Eau Claire.*
Freeman, Wynne Saberton,	*Mondovi.*
French, Everett Edwin,	*Madison.*
Friedmann, Max Edward,	*Milwaukee.*
Froehlich, Arno August Carl,	*Sheboygan.*
Fryette, Evangeline,	*Madison.*
Galvin, Myrtle Elizabeth,	*Cottage Grove.*
Gaveney, Shirleigh Marguerite,	*Arcadia.*
Gehl, Edward John,	*Hartford.*
Geisler, Harry Le Roy,	*Madison.*
Geisse, Ruby Antoinette,	*Madison.*
George, Emily Cornelia,	*Racine.*
George, Leo Byron,	*Milwaukee.*
George, Mabelle Hamilton,	*Shullsburg.*
Gillen, Edna Florian,	*Racine.*
Gillen, Verna Elizabeth,	*Racine.*
Gillette, Edmond Stephen,	*Aurora, Ill.*
Gilman, Helen Clare,	*Mondovi.*
Goodale, Frances Josephine,	*Houghton, Mich.*
Graff, Einar Hagemann,	*Madison.*
Grant, Margaret Ethelwyn,	*Milwaukee.*
Gratiot, Mary Anne,	*Shullsburg.*
Gratz, Mabel Maud,	*Madison.*
Greenough, Francis Xavier,	*Pierre, S. D.*
Grimm, Dacotah Belle,	*Parkston, S. D.*
Groom, Samuel Burton,	*Madison.*
Gross, Selma,	*Merrimac.*
Grotophorst, Carl,	*Plain.*
Habermann, Beatrice Estella,	*Lodi.*

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Habermann, Eugenia Blanche.	*Lodi.*
Halbert, Blanche Lodema,	*Madison.*
Hanan, Florence Louise,	*Oregon.*
Hannahs, Fred Charles, Jr.,	*Kenosha.*
Hanson, Otto Ludwig,	*Chippewa Falls.*
Harris, Kathryn Genevieve,	*Chippewa Falls.*
Harrop, George Argale, Jr.,	*South Bend, Ind.*
Hartley, Marion Belle,	*Oshkosh.*
Hayden, Gladys Langton,	*Dubuque, Ia.*
Hayes, Frank Dennis,	*Janesville.*
Heilman, Raymond Julius,	*Oconomowoc.*
Heitkamp, George William,	*Cuba.*
Henderson, Georgiana Dorothy,	*West Allis.*
Hendricks, Fred Henry,	*Evansville.*
Henkel, Ernest Guy,	*Ligonier, Ind.*
Hibbard, Ralph Rollins,	*Wauwatosa.*
Hill, Earl Myron,	*Grand Rapids.*
Hill, Edna Marion	*Madison.*
Hill, Pearl Borinne,	*Spring Green.*
Hinckley, Marguerite Josetta,	*Abbotsford.*
Hinn, Anna Marie,	*Fennimore.*
Hoesly, Frieda Agatha,	*Monroe.*
Hoffman, Bernard Parsons,	*Stevens Point.*
Hoffman, Carl Richard,	*Waupaca.*
Hollingsworth, Laura Annie,	*Dubuque, Ia.*
Holm, Mahala Rosencrans,	*Chicago, Ill.*
Hook, Maude Persis,	*Milwaukee.*
Hooper, Lorna,	*Oshkosh.*
Hopkins, Harry Ward,	*Champaign, Ill.*
Hoverson, Ethel Madeline,	*Milwaukee.*
Howard, Edna,	*Denver, Col.*
Hoyer, Harriet Elizabeth,	*Madison.*
Hubbard, Joseph Bradley,	*Madison.*
Huegel, Fred Julius,	*Madison.*
Hulburd, Florence Lawrence,	*Chicago, Ill.*
Hull, Phoebe Gertrude,	*Baraboo.*
Hunt, Myrtle Mae,	*Darlington.*
Ingalls, John Stewart,	*Menomonie.*
Jack, Ethel Grace,	*Wacoma, Ia.*
Jackman, Margaret Jane,	*Madison.*
Jacques, William Henry,	*Neillsville.*
Janssen, Julia Cornelia,	*Davenport, Ia.*
Jencks, Vescey Belle,	*Lodi.*
Jenner, George Herbert Austin,	*Ashland.*
Johnson, Agnes Beatrice,	*Richland Center.*
Johnson, Edward Ellsworth,	*Waupaca.*
Johnson, Laura Butler,	*Madison.*
Johnson, Palmer Oliver,	*Madison.*
Johnson, Russell Martin,	*Stoughton.*

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Jones, Margery Vining,	*Delafield.*
Jones, Merritt La Count,	*Wausau.*
Jungkunz, Ilma De Murska,	*Freeport, Ill.*
Kelly, Paul Frederick,	*Clinton, Ia.*
Kennedy, James Peter,	*Butte, Mont.*
Kiewert, George Ferdinand,	*Milwaukee.*
King, Zerah Putnam,	*Rock River Falls.*
Kitchell, Bertha,	*Topeka, Kan.*
Kjorstad, Harry Edwin,	*Black River Falls.*
Kneeland, Martin Dwelle,	*Northwood, Ia.*
Knox, Flora Roberts,	*Milwaukee.*
Knudson, Jeanette Louise,	*Madison.*
Knuppel, Amanda Augusta,	*Appleton.*
Koch, Oswald Theodore	*Osceola.*
Koehler, Lucy Josephine,	*Menomonee Falls.*
Kolinsky, Pete Charles,	*Racine.*
Koltes, Isidore Matthew,	*Madison.*
Kragh, Stella Marguerite,	*New York City, N. Y.*
Kratz, Clara Lola,	*Schleisingerville.*
Kremer, Eugene Edward,	*Fond du Lac.*
Kwank, Skirn-Siax,	*Chinkiang, China.*
Lamb, Clara Genevieve,	*Madison.*
Lau, Lloyd William,	*Clear Lake, Ia.*
Lawson, Lillian Edith,	*Menasha.*
Lawton, Sophia Louise,	*River Forest, Ill.*
Leach, Olive Marion,	*Sioux Falls, S. D.*
Leeden, Hebe,	*Kewaunee, Ill.*
Lent, Rudolph Ernest,	*Washington, D. C.*
Levitan, Abe Mortimer,	*Madison.*
Levitan, Esther,	*Madison.*
Lindas, Ida Caroline,	*Kenosha.*
Little, William Douglas,	*Geneva.*
Loeffler, Oscar Frederick,	*Milwaukee.*
Lorenz, Hollis Blood,	*Milwaukee.*
Lorenz, Le Roy Blood,	*Milwaukee.*
Lovett, Carl Henry,	*Duluth, Minn.*
Lucas, Lillian Bertha,	*Madison.*
Lucius, Blanche Agnes,	*Chicago, Ill.*
Lucius, Grace Emily,	*Chicago, Ill.*
McCordic, Almer Sheridan,	*Zion City, Ill.*
McGeehan, Florence Marie,	*Hurley.*
MacKenzie, Roderic Kenneth,	*Poynette.*
McKercher, Paul,	*Portland.*
McLaughlin, Mabel Catherine,	*Milwaukee.*
Mabis, Marie Katherine,	*Des Moines. Ia*
Malone, Edward Hebes,	*Waukesha.*
Mann, Edward H.,	*Sun Prairie.*
Marks, Marie Anna,	*Madison.*
Martin, Harriet Genevieve,	*Madison.*
Maw, Margaret Ellen,	*Madison.*
Mayer, Evelyn Susie,	*Leadville. Col.*

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Mayer, George Frederic,	*Milwaukee.*
Meadows, Ada Georgene,	*Ipswich, S. D.*
Meinecke, Conrad Eugene,	*Milwaukee.*
Meissner, Harry Victor,	*Milwaukee.*
Minch, Frances Eva,	*Madison.*
Minster, Charlotte Mae,	*Milwaukee.*
Mitchell, Morris Bockel,	*Madison.*
Moore, Cora May,	*Waukesha.*
Moore, Edith,	*Merrillan.*
Morley, Inez Elizabeth,	*Madison.*
Morley, Laura Hazel,	*Baraboo.*
Morrell, Gladys Leone,	*Escanaba, Mich.*
Morsbach, Robert Ernest,	*Durand.*
Mott, Anna Signa,	*Decorah, Ia.*
Moulton, Jennie Agnes,	*Sandwich, Ill.*
Munger, George Howard,	*Madison.*
Murray, Frances Josephine,	*Madison.*
Nash, Leo,	*Grand Rapids.*
Nedry, Galen Claudius,	*Dorchester.*
Neitzel, Anna Louise,	*Watertown.*
Nelson, John Alfred,	*Rockford, Ill.*
Neprud, Carl Alwin,	*La Crosse.*
Newman, Harriet Maria,	*Milwaukee.*
Nichols, Arthur Ross,	*Sparta.*
Nickerson, Lona Belle,	*Madison.*
Nickerson, Pearl Irene,	*Madison.*
Nye, Clark Chesebro,	*Eureka, Kan.*
Ohm, Howard Frederick Edward,	*Milwaukee.*
Oie, Ella May,	*Cooperstown, N. D.*
Oldham, Leslie Latham,	*Madison.*
Olmstead, Alice Belle,	*Pocatello, Ida.*
Orton, William Rutledge,	*Lincoln, Neb.*
Osborne, Eunice Elizabeth,	*Madison.*
Osborne, Robert Stevens,	*Madison.*
Ostrander, George Emmet,	*Columbus.*
Packard, Edna,	*Basco.*
Parent, Mary,	*Madison.*
Parker, James Kriss,	*Garden City, Minn.*
Parker, Reed Lynne,	*South Bend, Ind.*
Parmentier, Jules Merrill,	*Green Bay.*
Pellette, Arthur Jay,	*Hartland.*
Penick, Raymond Allen,	*Charlton. Ia.*
Penn, Charles Thomas.	*Superior.*
Perry, Elizabeth Dorothy,	*Des Moines, Ia.*
Peterson, Hazel Victoria,	*Rice Lake.*
Peterson, Helen Theresa,	*Soldiers Grove.*
Peterson, Oscar Hedberg,	*Chicago. Ill.*
Peterson, Reuben Carlton,	*Neenah.*
Pfeil, Paul Francis,	*Fond du Lac.*
Pflaum, Walter Otto,	*Algonquin, Ill.*
Phelps, Harold Frederick.	*Minot, N. D.*

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Phillips Henry Remington,	*Chicago, Ill.*
Pierson, Jay Joseph,	*Madison.*
Pierson, Merle,	*Milwaukee.*
Piper, Margaret Amelia,	*Madison.*
Piper, Raymond Frank,	*Madison.*
Platten, Helen Irene,	*Green Bay.*
Pope, Minnie Henrietta,	*Madison.*
Porter, Anna,	*East Troy.*
Porter, Philip Howe,	*Madison.*
Post, Jessie,	*Madison.*
Potts, Marian Edith,	*Madison.*
Pratt, Verona Fae,	*Missouri Valley, Ia.*
Pullen, Jones Spencer,	*Evansville.*
Quinn, Audrey,	*Woodstock, Ill.*
Ragan, Mary Elizabeth,	*Napoleon, O.*
Ramsdell, Bailey Edwin,	*Wausau.*
Raymond, Grace Marie,	*Chillicothe, Ill.*
Reed, Nathan William,	*Rosendale.*
Reek, Alice Kaye,	*Walworth.*
Reinholdt, Richard Theodore,	*Madison.*
Reynolds, Dannie Edward,	*Cottage Grove.*
Richards, Anna,	*Madison.*
Richards, Robert Baker,	*Racine.*
Richardson, Emma Hanks,	*Janesville.*
Richmond, Adam,	*Council Bluffs, Ia.*
Rietz, Walter Hermann,	*Manitowoc.*
Ringling, Alice Josephine,	*Baraboo.*
Roberts, Hazel Isabelle,	*Milwaukee.*
Robinson, Miriam Josephine,	*Madison.*
Roehling, Otto Carl,	*Milwaukee.*
Ross, Gilbert Clayton,	*Nunda, Ill.*
Rowland, Irma Elizabeth,	*Oregon.*
Runzler, Arthur Charles,	*Milwaukee.*
Ryder, Katherine Estelle,	*Dubuque. Ia.*
Sanborn, Roy Bates,	*Milwaukee.*
Scantleton, John M.,	*Cataract.*
Schaus, Joseph Deaken,	*Milwaukee.*
Schernecker, Eleanor Frances,	*Sun Prairie.*
Schneider, William John,	*Horicon.*
Schulze, Cora Edna,	*La Crosse.*
Scofield, Helen Cole,	*La Crosse.*
Scovill, Luella Mae,	*Rockford, Ill.*
Seifert, Andrew,	*Milwaukee.*
Sell, Lucile Iva,	*Reeseville.*
Sexton, Marie Jeanette,	*Marshfield.*
Shapiro, Lily,	*Medford.*
Shea, Catherine Mary,	*Ashland.*
Shoop, Bonnie Louise,	*Streator, Ill.*
Simpson, Harold Goodsir,	*Minneapolis, Minn.*
Simpson, Hugh Miller,	*Beloit.*
Simpson, Olive Mary,	*Shullsburg.*

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Sims, Vivian Florence,	*Linton, N. D.*
Sizer, Randolph Spelman,	*Helena, Mont.*
Skinner, Margaret Meron,	*Madison.*
Snyder, Clarendon Sweet,	*Monroe Center, Ill.*
Sonderegger, Hugo,	*Milwaukee.*
Soutar, Richard Gray,	*Lake Geneva.*
Stahl, Lena,	*Kalispel. Mont.*
Stapp, Gail Miers,	*Hope, Ind.*
Stark, Ada Lena,	*Hartford.*
Starks, Irene Valanche,	*Madison.*
Stegner, Mabel Jessie,	*Sioux Falls. S. D.*
Steinberg, William Harrison,	*North Freedom.*
Stevens, Mabelle Erma,	*Madison.*
Stewart, John,	*Aurora, Ill.*
Stewart, Laura Miriam,	*Mauston.*
Stoddard, Alfred L.,	*Villisca, Ill.*
Story, Harold Willis,	*Wauwatosa.*
Sullivan, William Kirk,	*Oak Park, Ill.*
Sutherland, Gladys,	*Madison.*
Swenson, Helen Katrina,	*Madison.*
Swerig, Mabel Beatrice,	*Madison.*
Swift, Winnifred Jessie,	*Cleveland, O.*
Taylor, Archibald Rogers,	*Barron.*
Taylor, William Amory,	*Stevens Point.*
Thompson, Arthur Clift,	*Evanston, Ill.*
Thompson, Willard Chandler,	*Sun Prairie.*
Thomson, Harold Page,	*Cavalier, N. D.*
Tiernan, William Lawrence,	*Edgerton.*
Todd, Louis Frances,	*Dixon, Ill.*
Tomhagen, Edith Sommer,	*Chicago, Ill.*
Toole, Eben Henry,	*Baraboo.*
Townsend, De Wayne,	*Oconomowoc.*
Tracy, Olive Catherine,	*Madison.*
Trane, Jessie May,	*La Crosse.*
Tristram, Robert Dix,	*Norwalk, Ct.*
Trowbridge, Marcia Lucy,	*Milwaukee.*
Tschudy, Marianne Helene,	*Monroe.*
Turner, Dorothy Kinsley,	*Madison.*
Tusler, Gertrude Ione,	*Oregon.*
Tyler, Verna May,	*Yankton, S. D.*
Underwood, Herbert,	*Milwaukee.*
Underwood, John Allen,	*Janesville.*
Vaas, Marie Herfurth,	*Madison.*
Van Blarcom, Maude Estelle,	*Fond du Lac.*
Veerhusen, Vera Elsbeth,	*Madison.*
Vehmeier, Fred Eldon,	*Dakota, Ill.*
Vitz, Frank Edward,	*Plymouth.*
Waite, Joy Davis,	*Prairie du Sac.*
Wakefield, Lois,	*Milwaukee.*
Wallin, Thomas Gale,	*Keokuk, Ia.*
Warwick, Charles Earl,	*Eastman.*

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Washington, Lawrence,	*Chicago, Ill.*
Wernicke, Carl Friedrich Gustav,	*Grand Rapids, Mich.*
Westphal, William Carl,	*Mayville.*
Whittaker, May Bell,	*Kenosha.*
Whitley, William Richard,	*Union Grove.*
Whoriskey, Mary Grace,	*Madison.*
Wieboldt, Elmer Frederick,	*Chicago, Ill.*
Wiedenbeck, Albert Louis,	*Lancaster.*
Wiese, Walter Fred,	*Milwaukee.*
Wilcox, Howard Van Brunt,	*Horicon.*
Wilkinson, Marcus Everts,	*Ashland.*
Williaman, John James,	*Rockford, Ill.*
Williams, Jay Henly,	*Gettysburg, S. D.*
Williams, Mary Wesley,	*Leadville, Col.*
Williams, Milton Bryan,	*Seneca, Kan.*
Willis, Helen Closon,	*Milwaukee.*
Winslow, Edith Agnes,	*Madison.*
Wolff, Arthur Gustave,	*Milwaukee.*
Worth, Philip Dwaine,	*Des Moines, Ia.*
Wright, Florence Matilda,	*St. Cloud, Minn.*
Wuesthoff, Will Walter,	*Milwaukee.*
Young, Joseph Howard,	*Elkhorn.*
Young, Lena Herimon,	*Wausau.*

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Course in Commerce

Ahlstrom, Leander Hjalmar,	*Ashland.*
Ames, John Burton,	*Stoughton.*
Arthur, Samuel Robert,	*Omaha, Neb.*
Babler, William Emil,	*Monticello.*
Bailey, George Davis,	*Sioux City, Ia.*
Baldwin, Lawrence Merrill,	*Kenosha.*
Beerbaum, Rudolph William,	*Waterloo.*
Bell, Rae Floyd,	*Madison.*
Bennett, George Edward,	*Lake Geneva.*
Biersach, Hugo,	*Milwaukee.*
Bjorn, Truman,	*Rice Lake.*
Boguslawsky, Marc,	*Milwaukee.*
Bonesteel, Verne Clinton,	*Padus.*
Boyd, Clarence Frederick,	*Aberdeen, S. D.*
Braasch, William Karl,	*Sheboygan.*
Bunin, Nohum Ben,	*Stevens Point.*
Butts, George Henry,	*Evansville.*
Carpenter, Floyd Goodrich,	*Madison.*
Carr, Jesse George,	*Aurora, Ill.*
Christians, George Frederick,	*Johnson Creek.*
Coerper, Roland Frederick,	*Hartford.*
Cole, Philip Bowman,	*Black River Falls.*
Crissey, Roy John,	*Janesville.*
Culbertson, Harold Edwin,	*Joliet, Ill.*
Dahl, Edwin Oliver,	*Eau Claire.*

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Diekelman, Reinhold Julius,	*Horicon.*
Doar, Fred Larkin,	*Cumberland.*
Ducker, George Allison, Jr.,	*Joliet, Ill.*
Ekern, Paul Chester,	*Superior.*
Fink, Elsie Charlotte Elizabeth,	*Richmond.*
Flickner, Hayward Beverly,	*Evansville, Ind.*
Frudden, Fred Alfred,	*Charles City, Ia.*
Gerlicher, Roscoe Franklin,	*Winona, Minn.*
Godfrey, Roscoe Wyman.	*Wauwatosa.*
Goff, Moulton Babcock,	*Madison.*
Greenwood, Albert Ernest.	*Johnson Creek.*
Greenwood, Arthur Stanley,	*Lake Mills.*
Greifenhagen, Paul Frederick,	*Chicago. Ill.*
Grell, Walter Henry,	*Johnson Creek.*
Hay, Townsend,	*Oshkosh.*
Hibbard, Alfred Tyler,	*Helena, Mont.*
Hibbard, Charles Frederick, Jr.,	*Milwaukee.*
Ho, Kim Tong,	*Honolulu, Hawaii.*
Hobart, Arthur Thomas,	*Batavia, Ill.*
Hoskins, Mark,	*Bloomington.*
Howard, Claude Earl,	*Sioux City, Ia.*
Igleheart, Austin Smith,	*Evansville, Ind.*
Janda, George Walter,	*Kewaunee.*
Johnson, Alvin Oscar,	*Woodville.*
Johnson, Carl John,	*Madison.*
Karlen, Herman Jacob,	*Monroe.*
Keplinger, Livingston Bond,	*Piqua, O.*
Klindt, John Arthur, Jr.,	*Cassville.*
Knauf, Arthur Raymond,	*Chilton.*
Knorr, Lynn Elmer,	*Granton.*
Kuechle, Benno Ernst,	*Sheboygan.*
Lake, George Burditt,	*Harvard, Ill.*
Lindsey, Roy James,	*Ashland.*
Longwell, Harry Cunningham,	*Sparta.*
Martinson, Bennie,	*Hayward.*
Medberry, Chauncey Joe, Jr.,	*Fond du Lac.*
Moore, Sidney John,	*South Milwaukee.*
Neprud, Selmer,	*Westby.*
Niss, Clarence Charles,	*Milwaukee.*
Norsman, Edgar,	*Madison.*
Nuzum, Ralph Edgar,	*Viroqua.*
Oetking, Frank George,	*Sheboygan.*
Park, Lawrence W.,	*Stevens Point.*
Paulsen, August Herman,	*Chilton.*
Pierce, Marson Wilgus,	*Milwaukee.*
Pleiss, Paul,	*Milwaukee.*
Potter, Clifford Bronson,	*Chicago, Ill.*
Pullen, Paul Pike,	*Evansville.*
Rudebusch, Hans Henry,	*Mayville.*
Rueth, George Albert,	*Sun Prairie.*
Schroeder, Walter Henry,	*Manitowoc.*

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Shaffer, Ralph Jay,	*Madison.*
Skinner, Roger Allen,	*Brodhead.*
Smith, Irving Charles,	*Racine.*
Smith, Kenneth Loveland,	*City of Mexico, Mex.*
Theobald, Jesse Edward,	*Madison.*
Thurston, Raymond Hugh,	*Onawa, Ia.*
Torbet, Albert William,	*Manistique, Mich.*
Tulloch, Harry A.,	*Victor.*
Tye, Frank Edward,	*West Chicago, Ill.*
Washburn, Walter Bert,	*Portage.*
Wetherby, Lucien Porter,	*Minneapolis, Minn.*
Wheeler, Elisha Ford,	*Plymouth.*
Wilmanns, Arthur John,	*Milwaukee.*
Woodard, Selwyn Clark,	*Cherry Valley, Ill.*
Woodhouse, Linn Arthur,	*Bloomington.*

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Course in Chemistry

Bentley, Wayne Harrison,	*Stevens Point.*
Chaplin, Edgar Lee,	*Plymouth.*
Dvorak, Albert Charles,	*Kewaunee.*
Goodnow, Albert Clarke,	*Waukegan, Ill.*
Holcomb, Frederick William,	*Madison.*
Irvine, Perry Dolber,	*Ledgerwood, N. D.*
Klieforth, Alfred Will,	*Mayville.*
Mayer, Sidney Louis,	*Chicago, Ill.*
Mirricless, Archibald Fraser,	*Macon, Mo.*
Oates, Arthur Raymond,	*Darlington.*
Sliwinski, Albert Adolph,	*Oconomowoc.*
Sprain, Fred Charles,	*West Salem.*
Street, Bernard John,	*Lead, S. D.*
Wollin, Andrew Albert,	*Oconomowoc.*
Zilisch, Felix William,	*Juneau.*

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Adult Special Students

Alexander, William Denton,	*Provo, Utah.*
Allen, Carl John,	*Allenville.*
Allen, Herman Joe,	*Belleville.*
Baird, Chester Dillon,	*Milwaukee.*
Baker, Bessie Anna,	*Madison.*
Beck, Carl Arthur,	*Oshkosh.*
Bishop, Jesse Archibald,	*Chicago, Ill.*
Bunta, Emil,	*Milwaukee.*
Case, Mrs. Leroy Clarence,	*Madison.*
Christiansen, Charles Marius,	*Mt. Horeb.*
Clark, Emily Ethel,	*Portage.*
Coleman, Robert Earl,	*Grand Rapids, Mich.*
Combacker, Marie Frances,	*Ellsworth.*
Connor, Ruth Priscilla,	*Auburndale.*

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Crawford, Fannie,	*Madison.*
Denniston, May Hogar,	*Madison.*
Fieldhouse, Myrtle Carrie,	*Dodgeville.*
Fletcher, Clark Robinson,	*Waukesha.*
Fowler, Robert Gordon,	*Amherst.*
Fusch, Laura Belle,	*Madison.*
Grady, Julia Ricketts,	*Madison.*
Grannis, Irving Van Vliet,	*Menomonie.*
Greene, William Lawrence,	*Palouse, Wash.*
Gysbers, John Henry,	*Madison.*
Harrison, Mabel Emelyn,	*Sandwich, Ill.*
Heinrich, Arnold Anton,	*Cedarburg.*
Imboden, David Calvin, Jr.,	*New York City, N. Y.*
Jackman, Johnston Charles,	*Madison.*
Jackson, Sidney Charles,	*Madison.*
Jessup, John Mercator,	*Madison.*
Johnston, Grace May,	*Chicago, Ill.*
Knoop, Walter Arend,	*Chicago, Ill.*
Knox, George Muishall,	*Portland, Ore.*
Leute, Helena Barbara,	*Kilbourn.*
Lippert, George Wolfe,	*Jefferson.*
Loew, Jesse Daisy Ida,	*Colgate.*
Loftsgordon, Henry Albert,	*Mt. Horeb.*
Lowell, Joseph Reed,	*Washington, D. C.*
Main, Gilbert,	*San Jose, Cal.*
Moy, Bock Ton,	*Milwaukee.*
Mueller, Hermann Carl Paul,	*Milwaukee.*
Notz, Helen Eda,	*Milwaukee.*
Olsen, Anna Margaret,	*Madison.*
Peet, Etta Ione,	*Kansas City, Mo.*
Powell, Arthur Edward,	*Marquette, Mich.*
Ragan, Kathryn Nora,	*Napoleon. O.*
Richardson, Gertrude,	*St. Paul, Minn.*
Ritland, Owen,	*Elroy.*
Rockwell, Ethel Theodore,	*Viola.*
Roemer, Mrs. Carolyn Pier,	*Milwaukee.*
Roump, Alma Bertha,	*Madison.*
Saposs, David Joseph,	*Milwaukee.*
Schiffbauer, Paul Peter,	*Benson, Ill.*
Schiller, Mathias,	*Fond du Lac.*
Schmidt, John J.,	*Riga, Russia.*
Scott, Laura,	*Madison.*
Smith, Harry Forsythe,	*Jacksonport.*
Stanley, Elton Wood,	*Hot Springs, S. D.*
Swail, Hazel Feakin,	*Belvidere, Ill.*
Tichenor, Myron Hawley, Jr.,	*Oconomowoc.*
Waite, Katherine Dillon,	*Portsmouth, O.*
Wakeman, Hattie Josephine,	*Madison.*
Westenhaver, Lulu May,	*Stoughton.*
Woodruff, Mary Louise,	*Baraboo.*

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Adult Special Students, Course in Commerce

Anderson, Carl Tesch,	*Milwaukee.*
Drinkwater, John Oscar,	*Kokomo, Ind.*
Ellsworth, Paul Rawson,	*Milwaukee.*
Fukuta, Toshiji,	*Gifu, Ken, Japan.*
Lawrence, Ben Eyles,	*Ottawa, Ill.*
Michael, Walter Cook,	*Ottumwa, Ia.*
Roberts, David Charles,	*Madison.*
Rudolph, William Thomas,	*Juneau.*
Warner, Rex Dudley,	*Rensselaer, Ind.*
Wilson, James A.,	*Blairstown, Ia.*

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Adult Special Students, Course in Chemistry

Bandt, Helmuth Fred Charles,	*Sheboygan.*
Bushnell, Clesson Taggart,	*Bronson, Mich.*
Gutowski, Leon Alexander,	*Racine.*
Seeman, Frank John,	*Kewaunee.*

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COLLEGE OF MEDICINE

Second Year

Beye, Howard Lombard, l. s.	*Oak Park, Ill.*
Bissel, Wayne William, l. s.	*Lodi.*
Dearborn, Walter Fenno, g.	*Madison.*
Diedrich, Victor Peter, l. s.	*Madison.*
Festerling, Edwin Garfield, g.	*Sheboygan.*
Fisher, Roland Frederick, l. s.	*Baraboo.*
Godfrey, Rush Clayton, l. s.	*Lancaster.*
Gunther, Otto, l. s.	*Sheboygan.*
Gunther, Theodore John, l. s.	*Sheboygan.*
Kissling, Arthur Charles, g.	*Milwaukee.*
Nelson, Oliver Otto, g.	*Madison.*
Simons, Dora May, l. s.	*Shawano.*
Slyfield, Forrest Foster, l. s.	*Sheboygan.*
Wahl, Harry Rosewell, g.	*Stratford.*

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First Year

Allard, Louis William, l. s.	*Laurel, Mont.*
Axley, Albert August, l. s.	*Cleveland.*
Brophy, Norman Delroy, l. s.	*Moorhead, Minn.*
Culver, Harry, l. s.	*Appleton.*
Franke, Meta Elsie, l. s.	*Milwaukee.*
Hall, Lucy, l. s.	*Watertown.*
Hanson, John Bennett,	*Warren, O*
Konrad, Frank Charles William, l. s.	*Oshkosh.*

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Lauerman, Archibald William, l. s.	*West Bend.*
Newman, John Robert, l. s.	*Madison.*
Petersen, Marius Smith, l. s.	*Milwaukee.*
Richardson, Maurice Leonard, l. s.	*Turtle Lake.*
Riley, William Henry, l. s.	*Altoona.*
Schulz, Raymond Louis, g.	*Milwaukee.*
Staley, Forest Henry, l. s.	*Chester, S. D.*
Sutherland, Harry Nicholas, l. s.	*Madison.*
Tearnan, Clyde Hadrian, l. s.	*Marshfield.*
Tearnan, Raymond Arthur l. s.	*Marshfield.*

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COURSE IN PHARMACY

Four Year Course

Atwood, Walter Myron,	*Madison,*	Junior.
Kendell, William Henry,	*Waukesha,*	Senior.
Luckey, Claude Campbell,	*Madison,*	Junior.
Ruenzel, Carl Henry,	*Milwaukee,*	Freshman.
Russell, G. Archibald,	*Fond du Lac,*	Junior.
Simons, Jasper Edgar,	*Lodi,*	Junior.
Swenholt, John,	*Madison,*	Senior.
Titus, Martin Edwin,	*Wilton,*	Senior.

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Two Year Course

Bach, Edward George,	*Green Bay,*	Second Year.
Boundy, George Laten,	*Oconomowoc,*	First Year.
Burns, Walter Clement,	*Oakfield,*	First Year.
Cleophas, Walter Edmund,	*Beloit,*	First Year.
*Duscheck, Edward,	*Sun Prairie,*	Second Year.
Falk, Victor Sofus,	*Stoughton,*	First Year.
Fischer, Ray Otto,	*Jefferson,*	First Year.
Gray, Harvey Oliver,	*Oregon,*	First Year.
Grimmer, Walter Gustav,	*De Pere,*	Second Year.
Hanson, Henry Peter,	*Hayward,*	First Year.
Holmes, Harold Howard,	*Mather,*	First Year.
Hurd, George Meneffee,	*Stoughton,*	First Year.
Jordan, Jennings Howe,	*Glen Haven,*	First Year.
*Kleinheinz, William Otto,	*Madison,*	First Year.
Leonard, Harry William,	*Madison,*	First Year.
*Link, Alfred August,	*Madison,*	Third Year.
Lorch, Elmer August,	*Madison,*	First Year.
Lovejoy, Isaac Nelson,	*Stoughton,*	First Year.
Lurvey, Edward Jackson,	*Oakfield,*	First Year.
*McGowan, Ray Elmer,	*Milton Junction,*	First Year.
Marriott, Franklin John,	*Gratiot,*	First Year.
Naffz, Otto,	*Madison,*	First Year.
Netzel, Arthur Frank,	*Crandon,*	First Year.
Peterson, Lawrence Peter,	*Viroqua,*	Second Year.

*Taking three year course.

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*Rauschenberger, Ernest John,	*Milwaukee,*	First Year.
Shutkin, Arthur,	*Milwaukee,*	Second Year.
Stephenson, Louis De Witt,	*Madison,*	First Year.
Stordock, Gilman Llewellyn,	*Beloit,*	First Year.
Turner, Henry Oscar,	*Mondovi,*	First Year.
Turner, James Isaac,	*Mondovi,*	Second Year.
Wolfe, Arno John,	*Sheboygan Falls,*	First Year.
Woolhiser, Theo Mary,	*South Wayne,*	Second Year.

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COLLEGE OF ENGINEERING

SENIORS

Acret, George Edward,	*Madison,*	G. E.
Andrews, Walter Cooper,	*Baraboo,*	Ch. E.
Arnold, Louis George,	*Eau Claire,*	C. E.
Austin, Eric Walton,	*Spanish Town, Jamaica,*	E. E.
Balch, John Willigrod,	*Marshalltown, Ia.,*	C. E.
Ball, Edwin Marcotte,	*Madison,*	Min. E.
Balsley, Henry Edwin,	*Madison,*	C. E.
Bandli, Eduard Mitchell,	*Rice Lake,*	C. E.
Bassett, William Beacher,	*Beaver Dam,*	E. E.
Bates, Floyd Elton,	*Madison,*	C. E.
Beasley, Phineas Welles,	*Milwaukee,*	C. E.
Becker, John Walter,	*Chicago, Ill.,*	C. E.
Beitel, Roy Milton,	*Madison,*	E. E.
Bell, George William,	*Tomah,*	E. E.
Bennett, Benjamin Floyd,	*Jeannette, Pa.,*	Ch. E.
Bertles, William Mathew,	*Green Bay,*	G. E.
Blake, George Barnes,	*Huron, S. D.*	E. E.
Boardman, Clark Clinton,	*New Richmond,*	M. E.
Brackenwagen, Earl Charles,	*Madison,*	C. E.
Brown, Paul Vincent,	*Racine,*	C. E.
Burritt, Charles Glenn,	*Mauston,*	C. E.
Buser, John Thomas,	*Potosi,*	C. E.
Bustamante, Luis,	*Mexico City, Mex.*	E. E.
Cenfield, Frank Henry,	*Potosi,*	C. E.
Cheney, Charles Albert, Jr.,	*Madison,*	Min. E.
Chuchian, Sahak Melkon,	*Madison,*	E. E.
Coleman, Alfred Freude,	*Chippewa Falls,*	M. E.
Colladay, Edgar Bergman,	*Madison,*	G. E.
Conlin, William Henry,	*Madison,*	C. E.
Conway, Jesse Frank,	*Antigo,*	E. E.
Cook, James Knight,	*Madison,*	M. E.
Cutler, Joseph Albert,	*Dodgeville,*	C. E.
Cutler, Manuel,	*Dodgeville,*	C. E.
Dahl, Chester Theodore,	*Madison, (Adv. Course)*	C. E.
Davila, Lorenzo Juan,	*Juana Diaz, P. R.,*	C. E.
Davis, Sidney Hugh,	*Madison,*	Min. E.
DeBoos, Frank Alfred,	*Madison,*	C. E.
Doods, John Hutchins,	*Milwaukee,*	G. E.

*Taking three-year course.

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Drew, Harold Winthrop,	*Milwaukee,*	G. E.
Dutton, Byron Kaye,	*Waupaca,*	C. E.
Edwards, Bruce Vincent,	*Bayonne, N. J.,*	M. E.
Edwards, Vernon Quam,	*Ashland,*	C. E.
Ely, Elmer Andreas,	*Mauston,*	M. E.
Engsberg, Emil Ernest,	*Lake Mills,*	E. E.
Faber, Merle Everitt,	*Madison,*	M. E.
Farnham, Frederick Foster,	*Beloit,*	Ch. E.
Fisher, Raymond Walter,	*Phillips,*	Min. E.
Fisher, Samuel Morton,	*Madison,*	C. E.
Ford, Ralph Henry,	*Sparta,*	E. E.
Froelich, Frank Richard,	*Glenbeulah, (Adv. Course)*	M. E.
Fuller, Clifford,	*Madison,*	M. E.
Garner, Harrison Levi,	*Madison,*	C. E.
Garnock, Alexander Richard,	*Tomah,*	C. E.
Gayton, Oscar Francis,	*Madison,*	C. E.
Geyer, Arthur Norman,	*Madison,*	E. E.
Glaettli, John Jr.,	*Milwaukee,*	C. E.
Gomez, Pastor,	*Calumpit, Bulacan, P. I., (Adv. Course)*	C. E.
Gray, Glenn Arthur,	*Madison,*	G. E.
Griswold, Ernest Carl,	*Madison*	E. E.
Haevers, William,	*Luxemberg.*	E. E.
Hale, Fred Earl,	*Madison,*	C. E.
Harvey, Harold Vincent,	*Racine,*	M. E.
Henke. Fred Christian,	*Wautoma, (Adv. Course)*	C. E.
Hodges, Paul,	*Monroe,*	G. E.
Hope, Samuel Newton,	*Fond du Lac,*	M. E.
Hunner Hale Haven,	*Eau Claire,*	Min. E.
Huntington, Edward Estabrook,	*Platteville,*	E. E.
Ives, Frederick Walter,	*Rubicon,*	M. E.
Johns, Edward Francis,	*Madison,*	M. E.
Johnson, Clarence Nathan,	*Trempealeau.*	E. E.
Johnson, Francis Ellis,	*Madison, (Adv. Course)*	E. E.
Johnson, Glen Le Roy,	*Rockford, Ill.*	E. E.
Johnson, Phillip Hafford,	*Appleton,*	E. E.
Jones, Charles Alvin,	*Burlington,*	E. E.
Jones, Charles Edward,	*Madison,*	C. E.
Kartak, Franz August,	*Oconomowoc,*	E. E.
Koch, Fred Herbert,	*Milwaukee,*	C. E.
Krahn, William Otto Herman,	*Milwaukee,*	C. E.
Kuhl, Herman Charles,	*Neillsville, (Adv. Course)*	C. E.
Küstermann, Walter Wolleben,	*Madison, (Adv. Course)*	E. E.
Kutschera, William Jacob,	*Milwaukee,*	M. E.
Kypke, Clark Henry,	*Lake Mills,*	Ch. E.
Lachmund, Herman,	*Madison,*	M. E.
Larson, Alfred Victor,	*River Falls,*	M. E.
Larson, Louis Martinus,	*Edgerton,*	C. E.
Lewis, Robert Dudley,	*St. Paul, Minn.,*	M. E.
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Stephenson, Louis De Witt
Stordock, Gilman Llewellyn
Turner, Henry Oscar,
Turner, James Isaac,
Wolfe, Arno John,
Woolhiser, Theo Mary

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Acret, George Edward
Andrews, Walter Co
Arnold, Louis Geor
Austin, Eric Walto
Balch, John Will
Ball, Edwin Mar
Balsley, Henry E
Bandli, Eduard
Bassett, William
Bates, Floyd E
Beasley, Phine
Becker, John
Beitel, Roy M
Bell, George
Bennett, Be
Bertles, Wil
Blake, Geor
Boardman,
Brackenwa
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nerth, Hubert,	*Sauk City,*	E. E.
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Zantow, Henry Carl,	*Baraboo,*	M. E.
Zeidlhack, Felix Stephen,	*Milwaukee,*	C. E.
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JUNIORS

Allen, Carlton Harrison,	*Belleville.*	M. E.
Angstman, Roger Warner,	*Detroit, Mich.,*	E. E.
Ballschneider, Arno Louis,	*Sheboygan,*	E. E.
Barth, John Herman,	*Port Washington,*	C. E.
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Meinicke. Alvin Edward,	*Milwaukee,*	E. E.
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Van Auken, Kenneth,	*Madison,*	C. E.
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Workman, Dean Miller,	*West De Pere,*	M. E.
Yandre, Edward William,	*Johnson Creek,*	M. E.

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SOPHOMORES

Aguilar, Rafael Hipolito,	*Candaba, Pam., P. I.,*	Ch. E.
Algeo, Harold Leigh,	*Chicago, Ill.,*	C. E.
Anderly, Howard Merle,	*Brodhead,*	C. E.
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Arnold, Frederick Claude,	*Milwaukee,*	C. E.
Astell, Leonard Keith,	*Madison,*	C. E.
Ball, Walton Cook,	*Union Grove,*	C. E.
Barclay, Arthur Jackson,	*Elgin, Ill.,*	C. E.
Bartlett, John,	*Sioux, Neb.,*	C. E.
Battles, Tracy Raymond,	*Baraboo,*	E. E.
Beat, John,	*Riley,*	E. E.
Beebe, Horace Merle,	*Fond du Lac,*	G. E.
Bennett, Wayne,	*Whitefish Bay,*	E. E.
Bickelhaupt, Carroll Owen,	*Aberdeen, S. D.,*	E. E.
Bickelhaupt, William Verne,	*Aberdeen, S. D.,*	Min. E.
Birch, Albert,	*Fargo, N. D.,*	C. E.
Bird, Brooke Gwathmey,	*Roland Park, Md.,*	M. E.
Blackburn, Paul,	*Elgin, Ill.,*	E. E.
Blake, Harry Duvall,	*Madison,*	C. E.
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Burt, Clayton Roger,	*Brodhead,*	C. E.
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Der-Mugerditchyan, Berge Stephen,	*Madison,*	C. E.
Dickinson, Kendall Foote,	*Lake Geneva,*	M. E.
Dietrich, Fred William,	*Randolph,*	E. E.
Dillon, Carl Duncan,	*Madison,*	C. E.
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Esau, George Walter,	*Milwaukee,*	Ch. E.
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Fess, Perry Thomas,	*Madison,*	E. E.
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Finner, Ewald Reinhard,	*Dodge,*	C. E.
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Johnson, Victor Emanuel,	*Washburn,*	E. E.
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Whelan, John Baptist,	*Chippewa Falls,*	E. E.
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White, Robert James,	*Beresford, S. D.,*	C. E.
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Wilson, Sylvester Francis,	*Northport,*	C. E.
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Woffenden, John Bernard,	*Bloomington,*	C. E.
Wolfert, Clarke Kryn,	*Sheboygan,*	E. E.
Wood, Lucien Alexander,	*Fonda, Ia.,*	M. E.
Woods, Charles Reynolds,	*Fond du Lac,*	C. E.
Woolrich, Willis Raymond,	*Minera Point,*	E. E.
Wurl, Frank Louis,	*Appleton,*	Ch. E.

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FRESHMEN

Abel, Charles Fred,	*Brillion, Mont.*
Adams, James Reva,	*Appleton.*
Alaniva, Charles Robert,	*Lead, S. D.*
Anderson, Carl Gustave,	*Madison.*
Amidon, Harry Ur,	*Hartford.*
Austermann. Richard Wagner,	*Waukesha.*
Aylward, Thomas James,	*Green Bay.*
Bacon, Vaughan Robert,	*Omaha, Neb.*
Bailey, Lee Addison,	*Chippewa Falls.*
Bainbridge, Walter L.,	*Mifflin.*
Baker, Harrie Albert,	*Decorah, Ia.*
Balch, Harold Charles,	*Neillsville.*
Barth, Eugene Albert,	*Port Washington.*
*Bartlett, Archie Lloyd,	*Eau Claire.*

*Died January 3, 1909.

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Baumgartner, William Fred,	*Pensaukee.*
Beebe, Gordon Alcott,	*Beloit.*
Beglinger, Clarence Henry,	*Superior.*
Bendt, Joseph Philip,	*Kenosha.*
Best, Byron Gray,	*Ironwood, Mich.*
Best, Paul Butler,	*Oak Park, Ill.*
Blackburn, Ralph,	*Elgin, Ill.*
Blair, George,	*Pittsburgh, Pa.*
Blair, Walter Ellsworth,	*Winona, Minn.*
Blankenhagel, Emil Carl,	*Hartford.*
Blessing, Albert Hiram,	*Fennimore.*
Blodgett, Charles Wallace,	*Green Bay.*
Blomeyer, Roscoe Stanhope,	*Milwaukee.*
Boardman, Robert Paige,	*Oshkosh.*
Bogan, Alvin Johnson,	*Appleton.*
Bolt, Walter Charles,	*Milwaukee.*
Braasch, Frederick William,	*Sheboygan.*
Bradford, William,	*Madison.*
Bradish, Charles Bresee,	*La Crosse.*
Branstad, Richard Eugene,	*Eau Claire.*
Braun, Walter Carl August,	*Baraboo.*
Brereton, Hugh Huleatt,	*Lodi.*
Brokaw, Van Seymour,	*Prairie du Chien.*
Browning, Elmer Ellsworth, Jr.,	*Buffalo, N. Y.*
Cadigan, John Andrew,	*Superior.*
Callen, Edwin William,	*Beaver Dam.*
Canada, Clemeth Kenneth,	*Elkader, Ia.*
Cantrell, William Furnam,	*Downsville.*
Carpenter, Frank Alonzo,	*Spring Green.*
Carus, Edward Hegeler,	*La Salle, Ill.*
Case, Gaylord Jones,	*Oshkosh.*
Cassady, Thomas Arthur,	*Janesville.*
Chritzman, George Moffett,	*Kewaunee.*
Cleveland, Ewart,	*Madison.*
Colburn, Romeo Hoyt,	*Chippewa Falls.*
Cole, Fred Marriott,	*Beloit.*
Collins, Edmund Richard,	*Racine.*
Connolly, John Mark,	*Milwaukee.*
Corbett, Richard Adkins,	*National Home.*
Cortelyou, Townsend,	*Brodhead.*
Costello, Tom,	*Sioux Falls, S. D.*
Cox, Walter Elmer,	*Ukiah, Cal.*
Crawford, John James,	*Menasha.*
Crosby, Harold Sutor,	*Rhinelander.*
Crozer, Thomas Rawling,	*Kewaunee, Ill.*
Cusack, James Michael,	*Darien.*
Damon, William Henry,,	*Madison.*
Davis, Rowland George.	*Milwaukee.*
Day, Leroy Irving,	*Lake Geneva.*
De Bower, Andrew J.,	*Dane.*
De Merit, Merrill Wilson,	*Lake Mills.*

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Dewey, George Glen	*Edgerton.*
Diehl, Albert Rudolph,	*Buffalo, N. Y.*
Distelhorst, Charles Andrew,	*Dorchester.*
Doelle, Henry Englehart,	*Fountain City.*
Dorr, George Nickoli,	*Stoughton.*
Douglas, Clayton Orville,	*Oshkosh.*
Dressendorfer, Arthur Emil,	*Arcadia.*
Druen, Dawn Earling,	*Ottumwa, Ia.*
Dunlap, L. Eugene,	*Auroraville.*
Dunnewald, Paul Witterding,	*Madison.*
Eggerss, Hans August	*Milwaukee.*
Elmore, William Chapman,	*Green Bay.*
Ely, Alexander White,	*Edgerton.*
Falconer, Addison Bentley,	*Bismark, N. D.*
Faucett, Robert Charles,	*Laurium, Mich.*
Fehlandt, William Louis,	*Madison.*
Filter, Elmer Leonard,	*Milwaukee.*
Fitz, Erwin Otto,	*Milwaukee.*
Foster, Fayette Laverne,	*Fall River.*
Fowler, Joseph Conrade,	*La Crosse.*
Fraser, John, Jr.,	*Milwaukee.*
Freier, Herman Julius,	*Neptune.*
Fryer, John Almeron,	*Whitewater.*
Fuente, Ernesto de La,	*Nadadores, Coah, Mex.*
Fullenwider, William Glenn,	*Waveland, Ind.*
Furstenberg, David August,	*Marshfield.*
Gaskell, Charles James,	*Baraboo.*
Geise, Leonard Alvin,	*Waterloo.*
Geisse, Charles Earl,	*Fond du Lac.*
Germond, Garth Irving,	*Oconto.*
Gill, George Edwin,	*Lake Geneva.*
Gillett, Laurence Farrington,	*Fond du Lac.*
Gordon, Leslie Edward,	*Glidden.*
Graetz, Walter Carl,	*Milwaukee.*
Grams, Walter Edmond,	*Watertown.*
Gross, Chester Philip.	*Stevens Point.*
Harris, Ellsworth Ne Collins.	*Mineral Point.*
Harrison. Raymond Timothy,	*Indianapolis, Ind.*
Hathaway, Warner.	*Beaver Dam.*
Head, Clarence Eugene.	*Kenosha.*
Heimbach, Elbert Blaine,	*Honey Creek.*
Henningsen Earle Stanley,	*Oakfield.*
Henningsen, Harry George,	*Lake Mills.*
Hewit, Earle John,	*Nashotah.*
Himmelstein, Arthur Louis,	*Milwaukee.*
Hitchcock, Glen Olin,	*West Salem.*
Hofmann, Roland Paul,	*Ft. Wayne, Ind.*
Holbrook, Henry Edwin,	*La Grange, Ill.*
Holmboe, Harold,	*Chicago, Ill.*
Holverscheid, Erwin,	*Hinsdale, Ill.*
Holverscheid, Harry,	*Hinsdale, Ill.*

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Horner, Chester William,	*El Paso, Ill.*
Horstkotte, Edward Henry,	*Potlatch, Ida.*
Housel, Leslie Jacob,	*Madison.*
Howard, Willard Samuel,	*Rice Lake.*
Hugel, Edgar Frank,	*Milwaukee.*
Humphrey, Griffith Evan,	*Oconomowoc.*
Hutson, Thomas Ralph,	*Madison.*
Hyatt, Chauncey Albert,	*Sheboygan.*
Hyde, Edward Elroy,	*Clark, S. D.*
Jacobson, Holger Oliver,	*Racine.*
Jaquith, Allen Fourestier,	*Elizabeth, N. J.*
Johns, Frank Wickizer,	*Lake City, Minn.*
Johnson, Charles Edward,	*Crown Point, Ind.*
Jones, Flint H.,	*Fond du Lac.*
Jones, Louis De Witt,	*Waukegan, Ill.*
Junemann, Elmer Martin,	*Waukesha.*
Kadish, Halbert Leopold,	*Milwaukee.*
Keene, Alvin Dewayne,	*Hillsboro.*
Kellogg, Rufus Henry,	*Green Bay.*
Kerler, William John,	*West Allis.*
Kiernan, Lawrence James,	*Genoa, Ill.*
Kietzmann William Arthur,	*Eau Claire.*
King, Ralph Siemens,	*Madison.*
Kirch, Charles Hugo,	*Mazomanie.*
Knudtson, Clarence Andrew,	*Blair.*
Kollage, Herman Frederick,	*Milwaukee.*
Kozarek, Steven Aloizy,	*Antigo.*
Kunz, Fritz,	*Freeport, Ill.*
Lagrandeur, Henry Jay,	*Somerset.*
Lake, Earl Garon,	*Madison.*
Lampert, Ben Harrison,	*Oshkosh.*
Langdon, Willian. Patrick,	*Janesville.*
Larsen, Herman,	*La Crosse.*
Larsen, Robert Leonard,	*Madison.*
Lee Harvey Richard,	*Janesville.*
Leist, Raymond Anthony,	*De Pere.*
Levenhagen, Henry Fred,	*Manitowoc.*
Lewis, John Alfred,	*Terraville, S. D.*
Loetscher, Martin Burl,	*Dubuque, Ia.*
Louret, Harry Abraham.	*Hingham.*
Love, Joseph Eugene,	*Sioux City, Ia.*
Loweth, Frederick Curtis,	*Chicago, Ill.*
Luckey, Carroll Hastings,	*Madison.*
Lyndon, Francis Alfred,	*Madison.*
McDougall, Shirley Alton,	*Whitewater.*
McGrath, William Francis,	*Milwaukee.*
McGuire, Alfred Russell,	*Honey Creek.*
McPherson, Donald Calhoun,	*Marshall.*
Madson, Frank Henry,	*Racine.*
Magill, Donald Groves,	*Guadalajara, Mex.*
Mapel, Dexter Roundy,	*Milwaukee.*

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Markwardt, Lorraine Joseph,	*Lansing, Ia.*
Martin, Charles Richard,	*Spring Valley.*
Meisser, Charles Martin,	*Prairie du Sac.*
Mereness, Harry Elmer,	*Elkhorn.*
Merkel, Richard Hans.	*Sauk City.*
Merriell, George Hughes,	*Chicago, Ill.*
Meyer, Harrison,	*Milwaukee.*
Middlekauff, Ellwood Jacob,	*Eau Claire.*
Miller, William Frederick,	*Racine.*
Monson, Benjamin Harrison	*Chicago, Ill.*
Moore, George McMurtrie,	*Jackson, Minn.*
Moore, Raymond Judson,	*Madison.*
Morgan, Roy Lyall,	*Madison.*
Morse, Chester Arthur	*Janesville.*
Moyer, William,	*Grand Rapids.*
Muck, Lee Frank.	*Jefferson.*
Mueller, August Henry,	*Manitowoc.*
Naber, Alexander Herman,	*Shawano.*
Nee, Patrick Joseph,	*Superior.*
Neumann, Fred Michael Christian,	*Norwalk.*
Newbury, Robert Charles,	*Waukesha.*
Nicol, Jason T.,	*Sparta.*
Norris, Lucius Allen,	*Elkhorn.*
Olson, Lester Fremont,	*Chicago, Ill.*
Orme, Thomas Howell,	*Racine.*
Osann, Norman.	*Oak Park, Ill.*
Page, Harry Allen.	*Prairie du Sac.*
Paige, Harold Leslie.	*Davenport, Wash.*
Parks, Rollin Robert,	*Fredonia.*
Peirce, Walter Anderson,	*Madison.*
Phelps, Marion A.,	*Albany.*
Pickard, Arthur Edward,	*San Diego, Cal.*
Pickford, Lyle Sears,	*Nora Springs, Ia.*
Plummer, William Francis,	*Baraboo.*
Pope, Arthur Charles,	*Ableman.*
Porter, James William,	*Elkhorn.*
Post, Malcolm Franklin,	*Madison.*
Poundstone, Earl Charles,	*Mellen.*
Powell, Charles Healy,	*Milwaukee.*
Prochazka, Henry Charles,	*Manitowoc.*
Pugh, William Harold,	*Racine.*
Quast, Adolph William,	*Madison.*
Quinn, Vilas Andrew,	*Aberdeen, S. D.*
Ramos, Juan Manuel.	*Camaguey, Cuba,*
Ramquist, Edward Evander,	*Superior.*
Rau, Harold Lippert,	*Milwaukee.*
Redfield, Frank Otis,	*Stevens Point.*
Ree, Albert Charles.	*Jefferson.*
Reggiardo, Juan,	*Victoria, Arg. Rep.*
Reid, Bryan Seaborne,	*Ashland.*
Richter, Oscar Arthur,	*Manitowoc*

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Riley, Donald Harrison,	*Evanston, Ill.*
Robbins, Stanley Curtis,	*Rice Lake.*
Roberts, William C.,	*Shullsburg.*
Rogers, Howard Herbert,	*Oak Park, Ill.*
Rollmann, Edwin,	*Chilton.*
Rose, Vernon Clarence,	*Milwaukee.*
Rosenow, Ernst Eric,	*Menasha.*
Rossbach, Clement Astor,	*Milwaukee.*
Ruege, Rudolph, Arthur,	*West Allis.*
Ruhloff, Frederic Carl,	*Milwaukee.*
Rust, Thomas H.,	*Eau Claire.*
Rynning, Paul Berthean,	*La Crosse.*
Schattschneider, Edwin Clems,	*De Forest.*
Schauers, Joseph George,	*Oconto.*
Schenck, Robert Evans,	*Omaha, Neb.*
Schilling, Walter William,	*Green Bay.*
Schindler, Lloyd Marcus,	*Monroe.*
Schneider Martin Peter,	*Madison.*
Schoen, Raymond William,	*Madison.*
Shape, Alfred Charles,	*Milwaukee.*
Sheets, Elmer Foster,	*Greenwood.*
Sheriff, Frederick Beby,	*Helena, Mont.*
Shonat, Archie,	*Galesville.*
Simon, Albert Henry,	*Ashland.*
Sladkey, Edwin William,	*Manitowoc.*
Slater, Percy Beverly,	*Milwaukee.*
Smith, Frederick Slocum Howland,	*Janesville.*
Smith, Leon Albert,	*Elgin, Ill.*
Sneen, Oscar Arthur,	*Stanley.*
Soergel, Robert John,	*Milwaukee.*
Speer, Zeno Milton,	*Milwaukee.*
Springer, Lew Wallace,	*Las Vegas, N. M.*
Staehle, Paul Max,	*Manitowoc.*
Stapleton, Leonard Edward,	*Watertown.*
Stengl, Rudolph John,	*Antigo.*
Stewart, Frederick James,	*Baraboo.*
Stock, Hugo Louis,	*Madison.*
Stoddard, Leroy Lester,	*Platteville.*
Sun, Jeefong Roy,	*Shanghai, China.*
Swenson, Carl Edgar,	*Rockford, Ill.*
Tabor, Edward Lavelette,	*Prairie du Sac*
Tack, Myron Anthony,	*Marshfield.*
Tapping, Watson Goodrich,	*Milwaukee.*
Tate, Philip Rhodes,	*Viroqua.*
Taylor, John Atkinson,	*New Lisbon.*
Thompson, Oscar Theodore,	*South Kaukauna.*
Tobin, Ralph Casper,	*Mellen.*
Toye, Earl William,	*Winona, Minn.*
Toye, Herbert Coleman,	*Decorah, Ia.*
Trayer, George William,	*Lansing, Ia.*
Trousdale, Paul Whitney,	*Madison.*

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Tyson, William John Carruthers,	*Niagara.*
Valenzuela, Jose,	*Guagua, Pam., P. I.,*
Valverde, Carlos Albert,	*Lima, Peru.*
Vasen, George Benjamin,	*Milwaukee.*
Vitz, Frank Edward,	*Plymouth.*
Vogel, Max Hermann,	*Odanah.*
Volquarts, Victor Henry.	*Plymouth.*
Walker, Emmett James Welch,	*Oklahoma City, Okla.*
Warner, Benjamin Isaac,	*Wheaton, Ill.*
Warner, Raymond Earl,	*Windsor.*
Warth, Edward Christian,	*Milwaukee.*
Watkins, Robert Marsh,	*Milwaukee.*
Weber, Cassius Michael,	*Chicago, Ill.*
Weinhagen, Louis Frederick,	*Milwaukee.*
Wellman, Walter,	*Madison.*
Wendt, Carl Albert,	*Waterloo.*
White, Frederick Daniel,	*Milwaukee.*
Whitney, Edward Nelson,	*Madison.*
Whomes, Walter DeWitt,	*Madison.*
Whoriskey, Charles Richard,	*Madison.*
Wiedenbeck, Harry John,	*Mauston.*
Wild, John Edgar,	*Butte, Mont.*
Wile, Harold Davidson,	*Chicago, Ill.*
Wiley, Raymond Aldred,	*Nekoosa.*
Wilkins, Benona Charles,	*Sharon.*
Willmore, Howson Edward,	*Waukegan.*
Wilson, Harry Albert,	*Chicago, Ill.*
Wiskocil, Clement Tehle,	*Milwaukee.*
Wolff, Werner Peter,	*Cumberland.*
Woolhiser, Herbert Ladue,	*South Wayne.*
Yerkes, Charles Greenlees,	*Oak Park, Ill.*
Zimmerman, Fred Russell,	*Evanston, Ill.*

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ADULT SPECIALS

Berssenbrugge, Bernard,	*Milwaukee,*	E. E.
Besnah, Albert Nicholas,	*Fond du Lac,*	.....
Bleyer, Addison Milton,	*Milwaukee,*	M. E.
Bleyer, Lloyd Garrison,	*Milwaukee,*	M. E.
Boettcher, Artnur Henry,	*Chicago, Ill.,*	.....
Boon, Leonard Francis,	*Appleton,*	C. E.
Bowen, Emmett Tisdale,	*Madison,*	.....
Bücher, Henry,	*Madison,*	C. E.
Coddington, Robert Leroy,	*Madison,*	.....
Cowalsky, William Max,	*Milwaukee.*	.....
Crisp, Fred William,	*Washington, D. C.,*	.....
Doyle, Ernest Patrick,	*Marinette.*	.....
Greenfield, Benjamin,	*Duluth, Minn.,*	.....
Greenwood, Charles Herbert,	*Milwaukee,*	C. E.
Hatch, Walter Adams,	*Iola,*	C. E.
Henes, George Lewis,	*Milwaukee,*	.....
Hoffman, Eugene Robert,	*Ellsburg, Wash.,*	.....

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Hoyt, Ralph Sherman,	*Madison,*	M. E.
Kester, Fred Henry,	*South Milwaukee,*	M. E.
Knebes, Erwin Lewis,	*Milwaukee,*	C. E.
Koenig, Herman Henry,	*Milwaukee,*	E. E
Lorig, Frank William,	*South Milwaukee,*	.....
Lupinski, Oswald,	*Milwaukee,*	C. E.
McCann, William Ray,	*Chicago, Ill.,*	.....
McQueen, Sherman John,	*Superior,*	.....
Nichol, Walter Howard Leslie,	*Marinette,*	M. E.
Nuti, Charles Bennett,	*Glen Haven,*	E. E.
Ross, Walter Carl,	*Milwaukee,*	E. E.
Ryan, James Thurston,	*Wausau,*	M. E.
Schikowski, Walter Herman,	*Milwaukee,*	M. E.
Schuchman, Bertram Frederick,	*Madison,*	.....
Schwada, Joseph Philip,	*Milwaukee,*	C. E.
Sellmer, Edwin Oscar,	*Milwaukee,*	.....
Smart, Cyrus Francis,	*Dodgeville,*	.....
Strudel. George Elias,	*Chilton,*	M. E.
Stewart, Lee Hayne,	*Janesville,*	.....
Strothmann, Oliver Ernst,	*Milwaukee,*	.....
Tanghe, Henry Franklin,	*Milwaukee,*	C. E.
Thayer, Thaxter Cengier,	*Berkeley, Cal.,*	M. E.
Wade, John Cedric,	*Muscoda,*	.....
Walters, Lee David,	*Milton,*	.....
Werner, Max Alfred,	*Milwaukee,*	C. E.
Wood, Le Roy Emory,	*Madison,*	.....
Wright, Edwin Carew,	*Newport, Ky.,*	.....
Zorsch, Edward Albert,	*Brighton, N. Y.,*	.....

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COLLEGE OF LAW

Senior Class

Affeldt, George August,	*Milwaukee.*
Allen, David King, B. A.,	*Allenville.*
Atwell, William Ensign,	*Stevens Point.*
Barlow, Elmer Elbert,	*Arcadia.*
Belknapp, Clark Hiram. M. A.,	*Fayette, Ia.*
Benson, Guy Alfred,	*Racine.*
Bigelow, Thomas, B. A.,	*Milwaukee.*
Black, Oscar McDonald,	*Madison.*
Bong, Carl Charles,	*Green Bay.*
Brookings, Eugene,	*Madison.*
Burns, Luke Francis,	*Cleveland.*
Bushnell, Alfred Hanson, B. A.,	*Madison.*
Collins, William Benjamin, B. L.,	*Sheboygan.,*
Curkeet, William Robert,	*Madison.*
Doyle, William Thomas,	*Milwaukee.*
Dreutzer, Carl Ebbe,	*Sturgeon Bay.*
Eder, Joseph, B. A.,	*Milwaukee.*
Elmer, Edward Wenzel,	*Maribel.*
Galbraith, Ernest John,	*Madison.*
Gardner, John David, Jr.,	*Platteville.*

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Gauerke, John Walter,	*Green Bay.*
Graebner, George John,	*Milwaukee.*
Gruenewald, Arthur Herrmann, B. A.,	*Oshkosh.*
Hall, Charles Norton, B. A.,	*Madison.*
Hartley, Clarence Joseph,	*Superior.*
Hill, Carl Newell,	*Spring Green.*
Janecky, Adolph Rudolph, B. A.,	*Racine.*
Johnson, James Albert, B. A.,	*Milwaukee.*
Karrow, Herman Henry,	*Milwaukee.*
Lehman, Don Raymond,	*Decatur, Ill.*
Lehner, Adolph Philip,	*Hartford.*
Miller, John Bernard,	*Lyndon Station.*
Morrissey, Maurice,	*Delavan.*
Morter, Robert John,	*Lodi.*
Noyes, Roy Enoch, B. A.,	*Baraboo.*
Olson, Conrad Patrick,	*Algoma.*
Pease, Harlow Francis, B. A.,	*Watertown.*
Pfiffner, Joseph Roe,	*Stevens Point.*
Prehn, Arthur William,	*Marathon City.*
Riley, James Patrick,	*Elroy.*
Riley, Miles Charles,	*Milwaukee.*
Rogers, Harlan Bethune,	*Portage.*
Sauthoff, Harry, B. A.,	*Madison.*
Shaff, John Ostrander, M. S.,	*Madison.*
Shockley, Dale Curry, B. A.,	*Darlington.*
Stephenson, Roy Sartial,	*Sturgeon Bay.*
Webster. Lawrence Benjamin,	*Madison.*
Williams, Leigh Lawrence, B. A.,	*Madison.*
Wolfe, Hubert Otto, B. A.,	*Appleton.*
Woodruff, Wendell,	*Mondovi.*
Wright, Colin Wilson, Jr, B. A.,	*Monroe.*

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Middle Class

Bednarek, Joseph Leon, B. A.,	*Beaver Dam.*
Blanchard, George Washington, B. A.,	*Colby.*
Boyden, Allan Leslie, Ph. B.,	*Green Bay.*
Brown, Harry Willard,	*Madison.*
Colignon, John Joseph, B. A.,	*Sturgeon Bay.*
Dean, Archie Tabor,	*Eau Claire.*
Donnelly, Emmett Archybalde,	*Milwaukee.*
Edwards, Verne Roberts,	*Bloomington.*
Ford, John Patrick,	*Rosendale.*
Francis, Tim Alvano, B. A.,	*Fargo, N. D.*
Goldschmidt, William Jacob,	*Madison.*
Hanson, John Arndt,	*Madison.*
Harnden. Emery David,	*Minong.*
Haseltine, Winfred David,	*Madison.*
Jenswold, Franklin Ernest,	*Baraboo.*
Kerr, William Dunton. B. A.,	*Chicago, Ill.*
Klezka, John Casimir,	*Milwaukee.*
McComb, Archie,	*Milton.*

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Michelson, Albert G., B. L.,	*Madison.*
Millman, Charles Frank, B. A.,	*Milwaukee.*
Murat, Walter Bernard,	*Stevens Point.*
Puchner, Rudolph,	*Wittenburg.*
Rigney, Stephen John,	*Scioto Mills.*
Roehl, Julius Otto, B. A.,	*Milwaukee.*
Rundell, Oliver Samuel,	*Livingston.*
Schoenfield, William Daniel,	*Madison.*
Sletten, Obert,	*La Crosse.*
Smith, Charles Forster, Jr., B. A.,	*Madison.*
Stark, Charles William, Jr., B. A.,	*Tiffany.*
Stengel, Alvin Lawrence,	*Jefferson.*
Tipton, Leo Maurice,	*Las Vegas, N. M.*
Vandervelde, Bartholomew, B. A.,	*Brandon.*
Whitney, Wildon Forest,	*Whitewater.*
Zollmann, Carl Frederick Gustav,	*Horicon.*

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JUNIOR CLASS

Anderson, Douglas Elvin,	*Madison.*
Boyle, Frank Edward,	*Eau Claire.*
Browne, James Howard,	*Victory.*
Burgess, Kenneth Farwell,	*Oshkosh.*
Campbell, George,	*Gurnee, Ill.*
Crouns, Arthur John,	*Nekoosa.*
Duckert, Richard Frederick,	*Cottage Grove.*
Emmett, Shirley Lincoln,	*Racine.*
Hirsch, Marx, B. A.,	*Corpus Christi, Tex.*
Horan, Emmett, Jr.,	*Eau Claire.*
Huebsch, Arthur Adam,	*Platteville.*
Johnson, J. Cornelius,	*Madison.*
Jones, John Reese,	*Columbus.*
Kelly, Albert Matthew,	*Hale's Corners.*
Leicht, George Jacob,	*Menomonee Falls.*
Longbotham, Lyle Victor,	*Cuba.*
McGraw, Charles James, B. A.,	*Augusta, Me.*
McMahon, Edward Michael, Ph. B,	*Milwaukee.*
Malig. Harvey August,	*Milwaukee.*
Malone, James Francis,	*Juneau.*
Martin. Hal Roger,	*Madison.*
Meyer, Frank Collis,	*Lancaster.*
Mills, Thomas Emmett, B. A.,	*Beloit.*
Murphy, James Roach,	*Chippewa Falls.*
Noyes, Haskell, B. A.,	*Milwaukee.*
Oelond, Legare Logan,	*Madison.*
Orchard, Milton, Ph. B.,	*Shullsburg.*
Peterson, Alvin Benjamin, B. S.,	*Soldiers Grove.*
Ramp, Floyd Cleveland, B. A.,	*Brooks, Ore.*
Sanderson, Thomas Harvey, B. A.,	*Cambria.*
Skinner, Alexander Wilson,	*Geneva, N. Y.*
Wilson, John Adelbert,	*Baker City, Ore.*
Wong, Ko-ung,	*Hankow, China.*

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Students in Other Colleges Electing Law Studies

Bessey, John Mack,	*Milwaukee.*
Buchen, Gustave William,	*Sheboygan.*
Coorsen, Louis Arthur,	*Milwaukee.*
Grady, Albert William,	*Port Washington.*
Haase, Oscar Rudolph,	*Milwaukee.*
Hogan, James Mangan,	*Fond du Lac.*
Juergens, Carl Henry,	*Madison.*
Jung, Ernst,	*Milwaukee.*
Pearce, Charles Chester,	*Dodgeville.*
Peterson, Basil Irwin,	*Blair.*
Quarles, Henry Capron,	*Milwaukee.*
Rodabaugh, Jesse Lawrence,	*Williamstown, O.*
Sachtjen, Herman William,	*Madison.*
Stiehm, Ewald Otto,	*Johnson Creek.*
Stover, Daniel George,	*Milwaukee.*
Te Selle, Clarence John,	*Sheboygan Falls.*
Whittier, James Ray,	*Madison.*

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Unclassified

Amen, Harlan Rosegrant,	*Missouri Valley, Ia.*
Bacon, King Myron,	*Antigo.*
Bergener, Charles Oliver,	*Shullsburg.*
Burke, Robert Jerome,	*Madison.*
Byrne, Frank Patrick,	*Bessemer, Mich.*
Clifford, Eugene Arthur,	*Juneau.*
Crowns, George H.,	*Nekoosa.*
Darrow, Joseph Daniel,	*Argyle.*
Everitt, George Waite,	*Alexandria, Minn.*
Fein, Alfred Erwin,	*Milwaukee.*
Fisher, Frank Whitney,	*Janesville.*
Gates, George Edward,	*Clear Lake, Ia.*
Gosling, Arthur,	*Madison.*
Huhn, Oscar Ferdinand,	*Cleveland.*
Jones, Mark Foulkes,	*Sparta.*
Kelley, William Thomas,	*Portage.*
Kempley, Chester Charles,	*Madison.*
Kujawa, Peter James,	*Fennimore.*
Luedke, Leo C.,	*Milwaukee.*
McGeever, James Daniel,	*Cuba.*
Markus, Frank, Jr.,	*Medford.*
Marsh, Howard Warning,	*Kokomo, Ind.*
Morse, Thomas,	*Princeton.*
Murphy, Peter James,	*Chippewa Falls.*
Pickering, Harold Gregg,	*Superior.*
Puls Charles Frank,	*Milwaukee.*
Smith, Frederick Ansel.	*Chippewa Falls.*
Strang Clive J.,	*Grantsburg.*
Thomas, John Dobson,	*Chicago, Ill.*
Timm, Walter Henry,	*Plymouth.*

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COLLEGE OF AGRICULTURE

LONG COURSE—SENIOR CLASS

Crandall, William Truman,	*Milton.*
Curtis, Joseph,	*New Lisbon.*
Davidson, Tom Ruston	*Evansville, Ind.*
Detjen, Louis Reinhold,	*Algoma.*
Gapen, Charles Earl,	*Monroe.*
Humphreys, John Moses,	*Madison.*
Johnson, James,	*Deerfield.*
Kolb, Roland A.,	*Cleveland.*
Lassetter, William Casper,	*Villa Rica, Ga.*
Lathrop, Alfred Tennyson,	*Madison.*
Leverich, Edward Starr.	*Sparta.*
McFetridge, William Lauren,	*Oshkosh.*
Marken, Richard Louis,	*Valders.*
Lewis, Marshall,	*Milwaukee.*
Matheson, Jesse Kenneth,	*Elkhorn.*
Messmer, John,	*Milwaukee.*
Mihills, Donald Ross.	*Fond du Lac.*
Morris, William Earl,	*Madison.*
Musback, Fred Ludwig,	*Fredonia.*
Nelson, Louis,	*Eau Claire.*
Oosterhuis, Alvin Cecil,	*Sheboygan Falls.*
Osborne, Oliver Martin.	*Oshkosh.*
Porter, William Leon.	*Fond du Lac.*
Reif, Walter John,	*Madison.*
Richards, Morris Wilford,	*Madison.*
Ruzek, Charles Vladis,	*Watertown.*
Selke, George Henry,	*Madison.*
Sievers, Fred John,	*Madison.*
Stocker. Albert,	*Sauk City.*
Thompson, William Eugene	*Somers.*
Truog, Emil,	*Arcadia.*
Wheelwright, Vivian Rowley,	*Belleville.*
Zentner, Francis Henry.	*Madison.*

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JUNIOR CLASS

Burke, Edwin Eugene,	*Waukesha.*
Carncross, Elmer Aeneas	*Lodi.*
Charles Edward Sanford,	*Madison.*
Cramton, Burton Lamont,	*Madison.*
Dacy, George Harold,	*Woodstock, Ill.*
Dudgeon, Sidney Ball,	*Madison.*
Dunnewald, Theodore John.	*Madison.*
Ernst, Claude B.,	*Thompson, O.*
Gafke, Arthur Joseph.	*Oregon.*
Gaston, José,	*Silay, Occ., Negros, P. I.*
Graber, Laurence Frederick,	*Mineral Point.*

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Heineck, William Edward,	*Madison.*
Hickcox, Orren Irving,	*Spring Green.*
Jenks, Arthur Harry,	*Lake Mills.*
Jones, John D., Jr.,	*Racine.*
Kuhlman, Arthur Henry,	*Lowell.*
Le Clair, Carl Arnie,	*Green Bay.*
Marshall, James Disraeli.	*Madison.*
Matheson, Forrest Day,	*Elkhorn.*
Mathews Le Grande,	*Brandon.*
Oldenburg, Frederic William,	*Deerfield.*
Porter, Joseph Kinnicuth Potter,	*Evansville.*
Severson, Burns Oscar,	*Stoughton.*
Showers Milton Walter,	*Mazomanie.*
Soriano, Oscar,	*Manila, P. I.*
Thompson, Albert Ludwig	*Blair.*
Tillotson, Frank Waite,	*Madison.*

—27

SOPHOMORE CLASS

Anderson, Martin,	*River Falls.*
Axley, Walter,	*Cleveland.*
Baer, Arthur Christopher	*West Bend,*
Barkley, William Grover Cleveland,	*Narrowsburg, N. Y.*
Bean Roy Perry,	*De Soto.*
Blank, George August,	*Grafton.*
Cairns John Hunter,	*Montello.*
Carter, George Byron,	*Lancaster.*
Christensen, Hans Gerhard,	*La Crosse.*
Doerschuk, John James,	*Shanesville, O.*
Doty, Harry W.,	*Madison.*
Graul, Edward John,	*Independence.*
Green, Edwin Leo,	*River Falls.*
Greene, Jay Irving,	*Clinton.*
Hanson, Carl Hugo.	*Elk Mound.*
Harker, John James,	*Linden.*
Hayes Edwin Hawley,	*Buffalo, N. Y.*
Hayes, Mark Webster,	*South Kaukauna.*
Hulce, Roy Stillman	*Whitewater.*
Jackson, William Malcolm,	*Marinette.*
Jelinek, Benjamin,	*Milwaukee.*
Jewett, Norman Lee,	*Sparta.*
Johnson, Hugh Christian	*Sheridan.*
Juve, Oscar,	*Stoughton.*
McConnell, Charles Fremont,	*Darlington.*
McNulty, James Bernard,	*Avoca.*
Masters, William Louis.	*Mineral Point.*
Meyer, Alfred Henry,	*Grafton.*
Moll John Edwin,	*Madison.*
Morrison, Frank Barron,	*Marshfield.*
Otis, Franklin Daniel,	*Maiden Rock.*
Pengelly, Roy Leo,	*Madison.*
Post Robert Lewis,	*Madison.*

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Rauchenstein Emil,	*Rice Lake.*
Richards, Griffith, Jr.,	*Madison.*
Sanders, Raymond Young,	*Chicago, Ill.*
Schoenmann, LeRoy Adolph.	*Madison.*
Scholfield, Harvey Hazeltine,	*Wausau.*
Smiley, Robert Flint,	*Albany.*
Smith, Harvey George,	*Brandon.*
Strickler, Paul Biddle.	*Des Moines, Ia.*
Tribe, William Frederick,	*Milwaukee.*
Ullsperger, Herman Wenzl,	*Algoma.*
White, Hubert Draper,	*Oak Park, Ill.*
Wied, Walter Evan,	*Waupaca.*

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FRESHMEN CLASS

Bahr. Lawrence,	*Spring Valley.*
Bailey, Elbert Gladstone,	*West Bend.*
Ballance, Nevius Van Dyke,	*Peoria, Ill.*
Banker, Paul Phillip,	*Ft. Atkinson.*
Beecroft, Albert Bonffler,	*Madison.*
Bentson, Benjamin,	*Viroqua.*
Berg, Anthony,	*Bloomer.*
Beyer, George Killian.	*Sturgeon Bay.*
Bigford, Llewellyn Gifford,	*Manawa.*
Boston, Willis J.,	*Stevens Point.*
Boutwell, Joseph Haskell,	*Waukegan, Ill.*
Brown, Adrian Abbott,	*Waterloo.*
Buser, Alfred Leo,	*Madison.*
Cardenas, Francisco Marcos.	*Saltillo, Mex.*
Collentine, Arthur O.,	*Monroe.*
Commons, John Alvin,	*Madison.*
Dach, Christian Broadhead,	*Viroqua.*
Dieter, William Albert,	*Montfort.*
Drescher, Henry Adolph,	*Sun Prairie.*
Esh, Glen Albyn.	*Spring Green, Ill.*
Fitzimmons, Ira Amos,	*Mineral Point.*
Gilman, Joseph Charles,	*Racine.*
Groves, Asa Biehl,	*Madison.*
Haeger. Fred Charles. Jr.,	*Madison.*
Hall, Raymond Gilbert,	*Madison.*
Hamilton, Gurdon Hubbard,	*Oak Park, Ill.*
Hammersley, William Charles,	*Madison.*
Hart, Harry,	*Humbird.*
Hartman, Glen Uriah.	*Tyrone.*
Hashimoto. Yozizaemon,	*Kishimagun Saga, Japan.*
Henke, Louis Albert,	*Lowell.*
Herrick. Marion Josephine,	*Eau Claire.*
Hoppert, Martin John,	*Sheboygan.*
Howe, William Canterbury,	*Boscobel.*
Hulburt, Clarence Hellings,	*Wauwatosa.*
Ingersoll, Weber Pelton,	*Oak Park, Ill.*
Kammlade, Stephen Girard,	*Bangor.*

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Katerndahl, Carl Earnest,	*Stevens Point.*
Klumb, Hugo Gottfried Nickolaus,	*Kewaskum.*
Loos, Walter Martin,	*Elkhart.*
Luce, Warren Vaughan,	*Baraboo.*
Mackmiller, William Frederick	*Ashland.*
Magee, George Edmund.	*Shawano.*
Meyer, Fred Clause,	*Chicago, Ill.*
Nelson, Martin Vincent,	*Madison.*
Nelson, Oran Milton,	*Pine Bluff, Ark.*
Newcomb, Henry Sage	*Pepin.*
Noer, Oyvind Juul,	*Stoughton.*
Parsons, Edgar.	*Cleveland, O.*
Pflughoeft, Henry Andrew,	*Algoma.*
Polley, Earl Arthur,	*Madison.*
Portman, Andrew Nelson,	*Chicago, Ill.*
Reinking, Otto August,	*Madison.*
Reynolds, Ralph Elmer,	*Lodi.*
Rouzer, Paul Charles,	*Oak Park, Ill.*
Schneider, John Carl,	*Portage.*
Schreiner, Alf,	*Westby.*
Scorlile, Walter Amasa,	*Riverside, Ill.*
Stevens, Elbert Crandall,	*Oak Park, Ill.*
Sweetman. Herbert Ray,	*Indianapolis, Ind.*
Tearse, William Pliny, Jr.,	*Winona, Minn.*
Thompson, Arthur George,	*Sun Prairie.*
Totman, Claire Carleton,	*Lancaster.*
Totman, Ward Mills,	*Lancaster.*
Utgard, Myron Harrison,	*New Richmond.*
Warren. David Mack,	*Chicago, Ill.*
Weir, James Henry,	*Mukwonago.*
Wilson, Lewis Kemper,	*Milwaukee.*
Zander, Arthur George.	*Milwaukee.*

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ADULT SPECIALS

Benkendorf, Gustav Henry,	*Wilmot, Kan.*
Breuch, Rudolph Joseph.	*Madison.*
Clippinger, Arthur Selby,	*Chicago, Ill.*
Dean, Hazen Stuart,	*Hinsdale, Ill.*
Dvorak, Albert Charles,	*Kewaunee.*
Fuller, Sidney Lewis,	*Milwaukee.*
Groover, William Aaron,	*Statesboro, Ga.*
Haas. George Herman,	*Meridan, Conn.*
Harvey, Caleb Barnabas,	*Wonewoc.*
Hickel, Oliver William,	*St. Louis, Mo.*
Hughes, Elmer Howard,	*Rewey.*
Morris, George Charles	*Madison.*
O'Malley, Michael Paul,	*Watertown.*
Oosterhous, John Jacob	*Waldo.*
Peters, John Williams,	*Lake Beulah.*
Peters, Lloyd Gleason,	*Madison.*

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Peterson, Bennie Arthur,	*Blair.*
Sanderson. Edward,	*Milwaukee.*
Sikhart, Joseph G.,	*Muscoda.*
Smith. Lawrence William,	*Racine.*
Thuerwachter, Louis Henry,	*Madison.*

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MIDDLE COURSE—SECOND YEAR

Bennett, Paul,	*Whitefish Bay.*
Billings, Edwin Sidell,	*Neillsville.*

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FIRST YEAR

Beach, Paul Mell	*Wittenberg.*
Bosshard, Eugene,	*Bangor.*
Bonner, Charles Alexander	*Chicago, Ill.*
Canavan, John Patrick,	*Appleton.*
Davis, Howard Earle,	*Centerville, Ia.*
Firth. John Malcolm,	*South Orange, N. J.*
Gamman, George Harvey,	*Chicago, Ill.*
Harper. Hugh Allen,	*Madison.*
Harrington, Myron Hozia,	*Waupaca.*
Laird, James Alexander,	*Shiocton.*
Lunde, Paul Edward,	*Poulsbo, Wash.*
Muck, Carl Seifert.	*Jefferson.*
Mueller, Walter Earl,	*La Crosse.*
Newell, Howard Heg.	*Burlington.*
Palfrey, John Robert,	*Omro.*
Palmer, Glenn Alcott,	*Brodhead.*
Peterson, Fred Ronald,	*Chicago, Ill.*
Pfiffner, James Meechan.	*Stevens Point.*
Potter, Byron Sears,	*Madison.*
Raub, Clyde Webster.	*Chalmers, Ind.*
Reineking, Adolph George.	*Appleton.*
Stangel, Otto Anton,	*Tisch Mills.*
Teisberg, Henry Alfred,	*Cottage Grove.*
Wall, Donald Miller.	*Milwaukee.*
Weidner, George Julius,	*Oshkosh.*
Wendt Frank Theodore,	*Chicago, Ill.*
Wunsch, Richard Henry,	*Haven.*

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ADUDT SPECIALS

Bennett, Lewis Conder,	*Falmouth, England.*
Cameron, Edgar Hugh,	*Fond du Lac.*
Dahlberg Arnold Orlando,	*Elroy.*
Naughtin, Frank Edward,	*Walnut, Ill.*
Thom, Carl.	*Watertown.*
Wall, James Henry,	*Milwaukee.*

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SHORT COURSE—SECOND YEAR

Adams, Lester Benjamin,	*Clyman.*
Adams, Richard Franklin,	*Campbellsport.*

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Allen. Eugene S.,	*Vesper.*
Anderson, Theodore	*Waterville, Ia.*
Andrew, George Albert, Jr.,	*Livingston.*
Anthon, Laures,	*Morrisonville.*
Arms, Eddie,	*Fountain City.*
Arnold, Arthur A.,	*Kiel.*
Arnott. Grace M.,	*Stevens Point.*
Aschbrenner, Henry,	*Stratford.*
Ash, Thomas,	*Sturgeon Bay.*
Austin, George Marden,	*Janesville.*
Bailey, Alfred Barrett	*Chatham, England.*
Bartleson, Harvey,	*Pine River.*
Bartlett, Ray William,	*Barron.*
Barton, Curtiss R.,	*Mt. Horeb.*
Becker, Harry John,	*Ft. Atkinson.*
Behm, Walter	*Manitowoc.*
Benoy, Edwin,	*Highland.*
Berg, Carl J.,	*Tigerton.*
Best, Carl,	*Kiel.*
Birkinbine, Frank William,	*Sun Prairie.*
Blackwell, Leslie C.	*Waukesha.*
Block, Albert Frederick,	*Markesan.*
Booth, Lester George,	*Cuba City.*
Borck, Sam,	*North Freedom.*
Bowman, Wallace,	*Detroit Harbor.*
Britzke. Paul,	*London.*
Bromley, Fred G.,	*Whitewater.*
Brooks, Homer Harrison,	*Hopkinton, Ia.*
Brown, Will,	*Spring Valley.*
Bryant, Clinton Albt..	*Hazel Green.*
Burt, James Lockhart	*Zenda.*
Burton, Charles I.,	*Milwaukee.*
Bussewitz, Raymond H.,	*Reeseville.*
Cade, Joseph Melvin,	*Viroqua.*
Carlson. Axel Theodore,	*Augusta.*
Chase. Albert L,	*Milton.*
Christianson, Irwin.	*Deerfield.*
Christenson, John Arthur,	*Pleasant Prairie.*
Christensen, Finn Bolgen,	*De Sota.*
Coates, Clinton James,	*Elkhorn.*
Coffin. Russell H.,	*Rockford, Ill.*
Collins Edward G..	*Kendall.*
Dahl, Albert,	*Viroqua.*
Dale, Helmer N.,	*Galesville.*
Daly, Richard Edward,	*Washburn.*
Das, Hriday Chandra,	*Najirpur, India.*
David, Louis Emil	*Burlington.*
Davies, Elias,	*Markesan.*
Davison, Robert Wright,	*Sun Prairie.*
De Forest, Theodore R.,	*Ann Arbor, Mich.*
De la Guardia, Hernan,	*Panama City, Panama,*

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Delcorps, Louis	*Sturgeon Bay.*
Dibble, Roy A.,	*Menomonee Falls.*
Dillman, Waldo W.,	*Milwaukee.*
Dodge, Paul Conde,	*Madison.*
Dolphin, Clarence,	*Cobb.*
Donovan, Frank J.,	*Van Dyne.*
Draves Henry F., Jr.,	*Montfort.*
Drummond, William Russell,	*Louisville, Ky.*
Dunbar, George,	*River Falls.*
Eagan, John Jay,	*Wautoma.*
Eggler, Victor,	*La Crosse.*
Ellis, Edward Jay	*Evansville.*
Engel, George Henry,	*Fountain City.*
Eskil, Odin Frithiof	*Iron Mountain, Mich.*
Faast, Benjamin Franklin,	*Eau Claire.*
Fernald, Paul Edmunds,	*West Olatown, Me.*
Foll, Walter,	*Deerfield.*
Forbes, Arthur,	*West Salem.*
Frame, Leon N.,	*Milwaukee.*
Fuller, Horace	*North Lake.*
Fuller, Roland,	*North Lake.*
Gade, Adolf,	*Reedsburg,*
Gasser, George W.,	*Spring Green.*
Gay, John,	*Madison.*
Gehrand, Arthur Adolph,	*Rochester.*
George, William R.,	*Sterling, Ill.*
Geralason, Mervin E. S.,	*Manitowoc.*
Germanson, Herbert,	*Luck.*
Ghastin, Floyd,	*Twin Bluffs.*
Gigstad, Benneth S.,	*Liberty.*
Godfrey, Burt K.,	*Janesville.*
Goldsmith, William Edward,	*Waupaca.*
Grandine, Morton D.,	*North Crandon.*
Grassman, Irwin,	*Kendall.*
Grove Albert	*Columbus.*
Gullikson, Gustave H.,	*Nelsonville.*
Gullikson, Thomas O.,	*Nelsonville.*
Gunderson, Clifford,	*Manitowoc.*
Hammersley, George M.,	*Madison.*
Hansen, Jens A.,	*Detroit Harbor.*
Hansen, Warner L.	*Manitowoc.*
Hanson, Henry C.,	*Spring Valley.*
Hard, Chester A.,	*Milwaukee.*
Harker, Irving O.,	*Dodgeville.*
Harris, Abel M.,	*Plainfield.*
Hart, William Charles	*Brookfield.*
Harvey, Caleb B.,	*Wonewoc.*
Hecker, Paul,	*New Richmond.*
Hegge, Julius,	*Galesville.*
Heling, William C.,	*Menomonee Falls.*
Heinrich, Otto William	*New London,*

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Hintz George Edward,	*Oakfield.*
Hobein, Fred William,	*Barrington, Ill.*
Hoffman, Jacob,	*Algoma.*
Holloway, Edward M.,	*Union Grove.*
Holterman. Robert K.,	*Fond du Lac.*
Hood, Donald L.	*Spring Green.*
Horswill, Willie,	*Black River Falls.*
Howe, Thomas R.,	*Sun Prairie.*
Hoxsey, Edward L.	*Serena, Ill.*
Hunt, Anthony,	*Winnetka, Ill.*
Hunter Hobart R.	*Fond du Lac,*
Iverson, Christian M.,	*Browntown.*
Jackson, Harwood,	*Oshkosh.*
Janecek, Cyril,	*Bloom City.*
Johnston, Oney,	*Appleton.*
Johnson Sam	*Westfield.*
Jorenby, Carl O.,	*Blanchardville.*
Johnson, Morris,	*Madison.*
Jones, Seneca T.	*Watertown.*
Judd, Jesse L.,	*Endeavor,*
Kaiser, William George,	*Louisberg.*
Kalouner, Edward,	*Antigo.*
Kaste, Alfred H.,	*Cream.*
Kaul, Erwin H.,	*Waukesha.*
Kersten, Leo C M.,	*De Pere.*
King William F.	*Jim Falls.*
Kirst, Ernest J.,	*Tomah.*
Klement, Otto C.,	*Ft. Atkinson.*
Klemm, Lewis Z.,	*Welcome.*
Klumb, Albert J.,	*Rockfield.*
Knapton William Eldon	*Downing.*
Knester, Ben C.,	*North Freedom.*
Knutson, Edwin A.,	*Manitowoc.*
Koenigs, Phillip,	*Fond du Lac.*
Koss, Otto W.,	*Medina.*
Kressin Gustav R.	*Cedarburg.*
Kroeger, Bernard C.,	*Milwaukee.*
Krofta, Rudolph,	*Kewaunee.*
Kuhtz, Harvey,	*Waukesha.*
Latta, Fay La Mont,	*Clinton Junction.*
Larson. Eli	*Sawyer.*
Lawson, Wilbur Asa,	*Rosendale.*
Lee, Oliver.	*Klevenville.*
Lee, Royal David,	*Arkdale.*
Leir, Selmer,	*Coon Valley.*
Lindberg Clinton Herman	*Dresser Junction.*
Linton, Gilbert A.,	*Ft. Atkinson.*
Locker, Arthur,	*Milwaukee.*
Lowe, Fred Otho,	*Petersburg.*
Lukken, Amil C.,	*Cambridge.*
Lukken Peter A.	*Mt. Horeb.*

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Mackimura, Rake,	*Sapporo, Japan.*
Martin, Arthur W.,	*River Falls.*
McAdam, Cecil,	*Milwaukee.*
McClurg, Walter F.,	*Viroqua.*
McCready B. Stuart	*Spring Green.*
McDermid, George Archie,	*Eau Claire.*
McLeod, Hugh S.,	*Chicago, Ill.*
McMillen, Carl A.,	*Endeavor.*
Mandt, Lawrence Orlando,	*Sun Prairie.*
Meier Edward Frank.	*Eden.*
Messerschmidt, Samuel H.,	*Flat Rock, O.*
Meyer, Willie,	*Ellsworth, Minn.*
Milkee, Geo. Emil,	*Newburg.*
Miller, Herbert William,	*Milwaukee.*
Mills. Roscoe	*Appleton.*
Mitchell, Edward H.,	*Delavan.*
Mitchell, Dean S.,	*Brookfield.*
Mitchell, George,	*Cottage Grove.*
Newhall. H. W..	*Toledo, O.*
Nelson, Carl Arthur,	*Greenwood.*
Nelson, Willie,	*Milltown.*
Neystrom, Archie,	*Maiden Rock.*
Nichols, Lowell Mason,	*Madison.*
Northrup Howard Richey.	*Chicago, Ill.*
Nourse, Glen,	*Sextonville.*
Offerdale, Julius,	*Boscobel.*
Olman, Alfred H.,	*Cottage Grove.*
Olsen, O. K.,	*Stoughton.*
Olson. Edward Henry.	*Algoma.*
Olson, Nels E.,	*Iola.*
O'Malley, Joseph,	*Madison.*
Paddock, Alvin L..	*Salem.*
Parrott, Alfred H.,	*Endeavor.*
Pearson, Clarence.	*La Valle.*
Perry. John Henry,	*Ft. Atkinson.*
Peterson, Esri M.,	*Amery.*
Phelps, Sumner Henry,	*Madison.*
Phillips, Henry Remington,	*Madison.*
Piper. Harry Benjamin,	*Sharon.*
Pope, Roy W..	*Sun Prairie.*
Popp, Arthur O.,	*Jefferson.*
Quale, John H.,	*Mondovi.*
Raetzman, Alfred L.,	*Reedsburg.*
Raichle, Fritz,	*Galesville.*
Ray, Victor,	*Madison.*
Rector, Carroll V..	*Grand Rapids.*
Renak. Edward.	*Racine.*
Rex, Edgar Herbert,	*Burnett.*
Reynolds, Wesley Gray,	*Tomah.*
Richardson, George James,	*Spring Grove, Ill.*
Riemer, Elmer W.,	*Ripon.*

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Roberts, Jack,	*Waukesha.*
Robson, Thomas Melvin,	*Spring Green.*
Rood, Henry,	*South Wayne.*
Runde, Aloysius,	*Cuba City.*
Rusch, Edward,	*Reedsburg.*
Ruskell, Francis E.,	*Belmont.*
Ruskell, Frederick,	*Belmont.*
Ryan, Gerald,	*Sun Prairie.*
Sackett, Clyde Mark	*Cumberland.*
Schaefer, Ervin S,	*Black Hawk.*
Schmit, William Frederick,	*Appleton.*
Schmitz, Edward Henry,	*Lone Rock.*
Schmitz, Hubert,	*Lone Rock.*
Schroeder, Herman F.,	*Appleton.*
Schroeder, Hugo W.,	*West Bend.*
Schuette, Herman W.,	*Reedsburg.*
Schultz, Nelson F.,	*West Bend.*
Schulte, Peter Joseph,	*Cleveland.*
Schumann, Hugo W.,	*Beaver Dam.*
Sette, Everett Arnold,	*Juneau.*
Sheen, Wray John,	*Trevor.*
Siepert, Fred W.,	*Chippewa Falls.*
Siebecker, Robert La Follette,	*Madison.*
Silver, Raymond,	*Belleville.*
Simmons, William Henry,	*Cuba.*
Smith, Russell John,	*Crystal Lake, Ill.*
Smith, Ray Kendrick	*Rands Grove, El Paso, Tex*
Snell, Earl Downing,	*Downing.*
Snyder, Clyde Lester,	*Janesville.*
Solem, Edward,	*Wonewoc.*
Sorenson, Camillo,	*Sturgeon Bay.*
Steensland, Morten,	*Madison.*
Stensby, Anton.	*Cottage Grove.*
Stone, James Riley,	*Reedsburg.*
Stromstad, Peter,	*Coon Valley.*
Stuesser, Eugene,	*Richfield.*
Tanner, Archie V.,	*Omro.*
Tempero, Roy J.,	*Menomonee Falls.*
Thacher, Louis E.	*Zenda.*
Thielke, Emil,	*Madison.*
Thom, Jacob Anthony,	*Bristol.*
Thompson, Gilbert G.,	*Blanchardville.*
Thorstad, Harlo Siverson,	*Deerfield.*
Torgerson, Gustav Adulf,	*Cottage Grove.*
Trewartha, Edward J.,	*Hazel Green.*
Tschudy, Benj. Otto,	*Monroe.*
Tubbs, John Herbert,	*Seymour.*
Uhrenholdt, Jens,	*Leonard.*
Ulrich, Erwin Carl,	*Horicon.*
Upton, Harold Frank,	*Chiswick, London, England.*
Utgaard Peter Wesley,	*Cylon.*

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Vine, Callice Hou.,	*Markesan.*
Vollrath, August Carl,	*St. Bonifacius, Minn.*
Ward, Charles E.,	*Ft. Atkinson.*
Ward, Robert William,	*Ft. Atkinson.*
Ward, Harold Leslie,	*Ft. Atkinson.*
Ward, Harold.	*Brodhead.*
Waite, Sumner R.,	*Oshkosh.*
Weirich, Martin J.,	*Baraboo.*
White, Arthur R.,	*Rockfield, Ill.*
Wigen, Andrew,	*Quarry.*
Wischoff, Edwin,	*Madison.*
Woldt. Hugo Z..	*Jackson.*
Wrolstad, Alfred M.,	*Amherst Junction.*
Young, Elmore,	*Beaver Dam.*
Zastrow, B. V.,	*Beloit.*
Ziemer, Paul F.,	*Jackson.*

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Short Course—First Year

Alberts, Will H.,	*New Richmond.*
Austin, Alva G..	*Janesville.*
Backhaus, Franklin G.,	*Kewaskum.*
Bartlett, George W.,	*Menomonee Falls.*
Bauer, Adolph H.,	*Manitowoc.*
Beach, Glenn H.,	*Loyal.*
Berns, Xavier.	*Guttenberg, Ia.*
Bethke, Edmund,	*Milwaukee.*
Bonsack, Theodore H.,	*West Salem.*
Brehm, Eddie A.,	*Colby.*
Briggs, Lynn W.,	*Peebles.*
Bristol, William A..	*Oakfield.*
Brunner, Robert W.,	*Hudson.*
Bullamore, Russell G.,	*Kenosha.*
Bumbalek, John L.,	*Milwaukee.*
Caldo, Leslie,	*Janesville.*
Carey, James E. L..	*Redgranite.*
Christ, Albert,	*Cambridge.*
Christensen, Johan,	*De Soto.*
Christianson. John L.,	*Hartland.*
Christianson, Albert,	*Deerfield.*
Christianson, Harold.	*Deerfield.*
Clayton, Alvin W.,	*Madison.*
Cobb, Homer A.,	*Sun Prairie.*
Cobleigh, Rollo S..	*Delton.*
Coleman. Charles H.,	*Perry Center, N. Y.*
Cook, George L..	*Burlington.*
Cooper, Maurice,	*Edgerton.*
Daley, Julius C.,	*De Forest.*
Dean, Charles E.,	*Madison.*
Dopp, Paul B.,	*Oconomowoc.*
Dunklow. Walter H..	*Franksville.*

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Durnford, George A.,	*Rockbridge.*
Egre, John S.,	*Cambridge.*
Eisenman, Ben F.,	*Mishicott.*
Ellsworth, Raymond.	*Tavera.*
Evensen, Frank	*De Soto.*
Gaum, Henry.	*Madison.*
Giebel, Karl A.,	*Fond du Lac.*
Grass, Anthony V.,	*Burlington.*
Gray, Howard K.,	*Milton, Mass.*
Grenzow, Jesse H.,	*Juda.*
Gridley, Benjamin F.,	*Wauwatosa.*
Groth, Charles A.,	*Cedarburg.*
Guenther, Nelson William,	*South Milwaukee.*
Gustaveson, Charles C.,	*Manitowoc.*
Hanifin, Leo.	*Grand Rapids.*
Hansen, Harry,	*Camp Douglas.*
Hansen, Ole C.,	*Detroit Harbor.*
Hansen, Carl F.,	*Sparta.*
Harper, Hugh A.,	*Madison.*
Harris, Benjamin F.,	*Delavan.*
Hatch, Orin E.,	*Oakfield.*
Hass, Reinhold A.,	*La Crosse.*
Hauck, Nathan,	*Alton, Calif.*
Hawkins, Arthur B.,	*Farley, Ia.*
Heasty, Ralph W.,	*Sparta.*
Hecketsweiler, Oscar J.,	*Alma Center.*
Hedlund, Adolph,	*Clayton.*
Hemingway, George L.,	*Hanover.*
Hendricks, John H.,	*Campbellsport.*
Hensel, Claire L.,	*Walnut, Ill.*
Hermann, Fred F.	*Osseo.*
Herrbold, Jacob W.,	*Sturgeon Bay.*
Herwig, Theodore,	*Delton.*
Highbarger, Howard,	*Seward, Ill.*
Hill, J. Thomas,	*Brookfield.*
Hinricks, Ernest,	*Reedsburg.*
Hintz, William F.,	*Oakfield.*
Hitchcock, Clarence E.,	*Sparta.*
Hocks, Walter,	*Sturgeon Bay.*
Hoefner, Herbert,	*Manitowoc.*
Hoeft, Charles A.,	*Oshkosh.*
Holzhuter, Walter E.,	*Marshall.*
Howe, John O.,	*Comstock.*
Hozsey, Edward H.,	*Serena, Ill.*
Hutchinson, William D.,	*Rubicon.*
Ives, Lovell W.,	*Rubicon.*
Jamison, Clarence B.,	*Appleton.*
Jerdee, Alfred O.,	*Deronda.*
Jerdee, Perry S.,	*Deronda.*
Joyce, Karron,	*Redgranite.*
Kastein, Herman,	*Waupun.*

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Kendell, George W.,	*Sun Prairie.*
Keuler, Aaron.	*Helenville.*
Kinstler, Clarence,	*Washburn.*
Klavitter, Edward J.,	*Wausau.*
Klein, Walter C.,	*Orfordville.*
Knuteson, Ernest L.,	*Wautoma.*
Kecmich, Edward	*Kewaunee.*
Koenecke. Edward,	*Reedsburg.*
Krause, Fred W.,	*Thorpe.*
Kruschke, George H.,	*New Richmond.*
Kundert, William,	*Monroe.*
Landt, Newton A..	*Kilbourn.*
Lee, Peter A. G.,	*Deerfield.*
Leonard William R.,	*Jefferson.*
Lewis, Lloyd L.,	*Stevens Point.*
Luetscher, Irwin,	*Plain.*
MacArthur, Gilbert S..	*Madison.*
Mack, Warren L.,	*Whitewater.*
McCaig, Ernest,	*Milton Jct.*
McCarthy, George.	*Fredonia.*
McDowell, David P.,	*Packwaukee.*
McLean, Donald	*Denver, Colo.*
McMillan, Hubert N.,	*Medford.*
Matthys, Walter N.,	*Barron.*
Mau, Herman G.,	*Brodhead.*
Mayo John H.,	*Eau Claire.*
Meacham, Condon.	*Downing.*
Messner, Edwin F.,	*Oakfield.*
Meyer, Alfred J.,	*Oakwood.*
Meyer, John V.,	*Sheboygan.*
Michels, Matthew,	*Madison.*
Miller. George Charles	*Milwaukee.*
Mills, Stanley,	*New Auburn.*
Mistelo William,	*Kendall.*
Moore, Henry G.,	*Mauston.*
Morgan, Mrs. Mary P.,	*Madison.*
Mueller, Mathias J.	*Edgerton.*
Murphy. Laurence F.,	*Hartford.*
Nau, Ray H.,	*Franksville.*
Nelson, Emil,	*River Falls.*
Neprud, Nels O.,	*Coon Valley.*
Ness, Andrew.	*Windsor.*
Neuberger, William T.,	*Reeseville.*
Nieman Walter,	*Hamburg.*
Norrbom. Carl G.,	*Eland.*
Oestreich, Louis J.,	*Kewaunee.*
Ogden, George F.	*Madison.*
Owen, Thomas M.,	*Portage.*
Owen, David,	*Waukesha.*
Peebles John,	*Oconomowoc.*
Peppers, Gale,	*Beloit.*

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Peters, John.	*Waterford.*
Peterson, John H.,	*Oashton.*
Petrie, Merton E.,	*Elkhorn.*
Pierce, Henry E.,	*Milton Jct.*
Pinkerton. Altai J.,	*Waupaca.*
Poulter, Charley W..	*Cumberland.*
Preston, William N.,	*Juda.*
Price, Fred,	*Bristol.*
Raichle, Carl,	*Galesville.*
Rather, Armand P.,	*Peebles.*
Rauchenstein. John	*Rice Lake.*
Robers. William J.,	*Burlington.*
Roderick, Lee M.,	*Juda.*
Rodewald, Walter C.,	*Baraboo.*
Rodger, Ray,	*Endeavor.*
Rolfson, Clarence E..	*Waterford.*
Root, Alvin W.,	*Fond du Lac.*
Ruskekl, Louis E.,	*Belmont.*
Schmit, Albert,	*Appleton.*
Sebion, Cornelius,	*Westby.*
Sims, Orley F..	*Melrose.*
Singer, Henry,	*Chicago, Ill.*
Smith Jesse E.,	*Loyal.*
Smith, Edward P.,	*Humbird.*
Smith, Samueal A.,	*Oakfield.*
Smithback, Marvin E.	*Cambridge.*
Stevens, Ernest A..	*Eau Galle.*
Stevenson, Carl,	*Soldier's Grove.*
Stewart Joe H..	*Wales.*
Stewart, Blaine G.	*Antigo.*
Sutton, Erwin G.	*Augusta.*
Swerig, Carl,	*Stoughton.*
Thompson, Alfred N.,	*Delavan.*
Thompson, Adolph.	*Black River Falls.*
Uhlin Albin,	*Clayton.*
Unger, Edward F.	*Milwaukee.*
Van Curen, Paul,	*Knapp.*
Velum, Tollef,	*Stoughton:*
Voight, Alwin,	*Oconomowoc..*
Wagner, Arthur L.,	*Haven.*
Wagner Raymond G.	*Stevens Point.*
Wallington. Thomas,	*Rugby, England.*
Warzynakoski, Arthur F.,	*Oakwood.*
Wehrwein, Walter,	*Manitowoc.*
Weifenbach, Fred,	*Madison.*
West, Willie,	*Neillsville.*
Wick. William F..	*Mauston.*
Wieland. Charles,	*Lancaster.*
Williams, Zenas,	*Genesee Depot.*
Wood, Calvin D.,	*Oshkosh.*
Worden, Edward L.,	*Watertown.*

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Wunsch, Hugo E.,	*Haven.*
Zabel. Henry W.,	*Deerfield.*
Zillmer, William C.,	*Brookfield.*

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DAIRY SCHOOL CLASS

Ahlers, Carl,	*Vancouver, B. C.*
Altman, Frank,	*Blenker.*
Andre, Jule Jule	*Casco.*
Armitage, Alvah,	*Seymour.*
Babler. John,	*Forestville.*
Bade, Elwood Julius,	*Plymouth.*
Baumgart, Otto Louis,	*Colby.*
Bentson, Bernhard	*Leeman.*
Bernstein, Walter.	*Philadelphia, Pa.*
Bishop, Charles,	*De Soto.*
Boettcher, John Emil,	*Janesville.*
Bogert, John Harold,	*Husteler.*
Bogucki, Joseph.	*Seymour.*
Braun, Albert Edwin,	*Two Rivers.*
Brierley, Walter Edward,	*Hersey.*
Brill, George Alexander,	*Caryville.*
Brill. John James,	*Caryville.*
Buchholz, Daniel L.	*Wilton.*
Burt, William Allen,	*Independence.*
Buroker, Martin Alvin,	*Soldiers Grove.*
Christen, Jacob,	*Oakfield.*
Clark, John,	*Stevens Point.*
Cleveland. Frank Lee.	*Baraboo.*
Cooney, James Thomas,	*Amherst.*
Conway, William Frederick,	*Janesville.*
Conklin, Louis,	*Seymour.*
Cross, Edwin James,	*Winneconne.*
Dahl, Edwin Gerhard	*Strum.*
Dahlke, Paul,	*Pinconning, Mich.*
Danke, Alfred,	*Readfield.*
Dietsch, Harley Jesse,	*Plymouth.*
Dreyfka, Felix,	*Stevens Point.*
Eckwright, Edmund	*Bloomer.*
Egan, John Francis,	*Gratiot.*
Eichel. George Frederick,	*Beebles.*
Eichel, Herman,	*Rosendale.*
Englebert, Henry Felix,	*Forestville.*
Ensch, William Perry.	*Mauston.*
Erickson, Elmer,	*Hayward.*
Faber, William,	*Sandusky.*
Figved. Ingold J.,	*Two Rivers.*
Finck, Paul,	*Lake Mills.*
Fitzgerald, Thomas P.,	*Watertown.*
Flemal, Louis,	*Forestville.*
Florence, George Henry,	*Marshfield.*
Freye, Harley Elmer,	*Mt. Hope.*

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Fritz. William,	*Cobb.*
Friday, Guy G.,	*Richland Center.*
Garske, Arthur August,	*Manawa.*
Gassen, George,	*Twin Bluffs.*
Guth, Albert,	*Forestville.*
Graff, Clyde Lester,	*Menomonie.*
Grawin. Frank,	*Kendall.*
Hanke, Edward,	*Marathon City.*
Hegge, Oscar,	*Whitehall.*
Hendrix, Howard,	*Valparaiso, Neb.*
Herda, Emil,	*Algoma.*
Heyder, Arthur Paul.	*Neillsville.*
Higgins. Mike Jerome,	*Osgood, Ind.*
Hirshbrunner, Fred,	*Darlington.*
Hitzke, Elmer,	*Clintonville.*
Hofacker, Benjamin W.,	*Plum City.*
Hoglund, Victor Emanuel	*Grantsburg.*
Hubbard, Leslie Ellsworth,	*Neillsville.*
Huson. Williard Lyman,	*Plymouth.*
Ihle. Edwin,	*Coon Valley.*
Imme, Herman Frederick,	*Woodland.*
James, William Delmar.	*Doylestown.*
Jennings, Robert Ray,	*Alma Center.*
Johnson, Ellis W.,	*Paoli, Ind.*
Johnson. Hilmer,	*Denmark.*
Johnson, A. C.,	*Camp Douglas.*
Johnson, David Peter	*Milltown.*
Jorgensen, John E,	*Neenah.*
Jung, Arthur,	*Ladysmith.*
Karls, Peter,	*Malone.*
Kelly. Frank William,	*Honey Creek.*
Kennetz, Edward Frederic	*Clear Lake.*
Kleinhans, John,	*Campbellsport.*
Kliment. Anton,	*Kellversville.*
Kobayashi, Naosaburo,	*Asahigawa, Japan.*
Koenig, Thomas,	*Stangelville.*
Kohlmann. Louis Benedict	*Glenbeulah.*
Koopman, Albert, Jr.,	*Port Washington.*
Kortbein. Louis Charley,	*Clintonville.*
Koschkee, William John,	*Mt. Hope.*
Kothlow, George,	*Jefferson.*
Klug, Albert W.,	*Waukesha.*
Kramer, John Christ, Jr.,	*Montford.*
Krause, William August,	*Fall River.*
Kretzschmar, Julius,	*New Lisbon.*
Krog, Alfred Herman,	*Platteville.*
Krueger. Max,	*Merrill.*
Lichte, Albert H.,	*Loganville.*
Luckovitch, John James,	*Stevens Point.*
Manwaring, William Harry,	*Spring Green.*
Metzig, Henry,	*Fremont.*

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McDermott, John Joseph,	*Sawyer.*
Michelson. Oscar,	*West Salem.*
Moody, George William,	*Berlin.*
Moldenhauer, Erwin Ferdinand,	*Watertown.*
Moore, Archie,	*Ogdensburg.*
Mott, Perry James.	*Rose Lawn.*
Neumann, William Richard,	*Barron.*
Newhall Harold Wendell,	*Toledo, O.*
Nogle, Arthur Garfield,	*Mondovi.*
Otto, Thomas P.,	*Harmony, Pa.*
Parks, Dwight Comstock,	*Murphysbard, Ill.*
Paulson, Carl Antone,	*Green Bay.*
Peterson, Lewis,	*Spring Valley.*
Peterson. Peter J.,	*Niebull.*
Preuss. William Frederic,	*Ogdensburg.*
Prucha, Emil Edward,	*Mishicott.*
Randall, Bert Otis,	*West Rosendale.*
Rebitz, Joseph,	*Kewaunee.*
Rechner, George Frederick,	*Stratford.*
Relford Emmit,	*Eleva.*
Rindt, Herman Albert,	*Clintonville.*
Rose, Walter,	*Juneau.*
Runge, Arthur Henry,	*West Salem.*
Sarauer, John Joseph,	*Bloomer.*
Schradter, William,	*Marshfield.*
Schneider. Fredreick,	*Pulaski.*
Scholtz, Frank,	*Woodruff.*
Schumacher, John,	*Sawyer.*
Serl, Eugene R.,	*Wilton.*
Sheeks, George,	*Orleans.*
Singer. William H.,	*Highland.*
Speaker. George A.,	*Green Bay.*
Spreen, Paul,	*Medford.*
Springer, Ben. Henry,	*Platteville.*
Steiger, William C.,	*Greenwood.*
Stocker, Fred.	*Kenyon.*
Stone, James Riley	*Reedsburg.*
Suelflow. Edmund,	*Thiensville.*
Sullivan, John William,	*Lone Rock.*
Thiede, Ernest Louis,	*Abrams.*
Thompson, John Ross,	*Cumberland.*
Tomter, Theodore,	*Pigeon Falls.*
Totman, Ward Mills,	*Lancaster.*
Uebersetzig. John Theo.,	*Cross Plains.*
Ullsperger, Joseph N.,	*Forestville.*
Vlise, William.	*Casco.*
Watt, Robert Bigger,	*Xenia, O.*
Weber, Andrew Frederick,	*Milton.*
Welch, Roscoe Richard,	*Collins, Miss.*
Witt Arthur Carl,	*Clintonville.*
Worman, Robert Leroy,	*Chetek.*

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SUMMER SESSION OF 1908

GRADUATES

Ackermann. Adolf, *New Ulm, Minn.*
B. A., Martin Luther College.
Allen, Daisy May, *Allenville.*
Ph. B., University of Wisconsin. History.
Allen, Leroy, *Cedarville, O.*
Ph. B., University of Wooster. Political Economy.
Allstrand, Mae Belle, *Carroll, Ia.*
B. A., State University of Iowa. German.
Andrews, John Bertram, *South Wayne.*
M. A., Dartmouth College.
Austin. Frederick Pasqua, *Leadville, Col.*
Ph. B., University of Colorado.
Aylsworth, Leon Emmons. *Lincoln, Neb.*
B. A., University of Nebraska.
Barber, Clara Velma, *Washington, D. C.*
B. A., George Washington University.
Barber, William Harley,
B. S., University of Wisconsin. Physics.
Barlen Otto Karl, *Barmen, Prussia.*
Graduate of Strassburg University.
Barrows, Frances Weld, *Winona, Minn.*
B. A., Ohio State University.
Bassett, Harry Kendall. g *Madison.*
B. S., Columbia University.
Beath, Orville Andrew, *Verona.*
B. A.. University of Wisconsin.
Becher, Max Albert, g *Milwaukee.*
B. A., University of Wisconsin.
Beeman, Larkin Louis. *Anderson, Ind.*
B. A., Indiana University.
Beman, Lamar T., *Cleveland, O.*
M. A., Ohio State University.
Benner, Raymond Calvier, *Sauk Center, Minn.*
M. A.. University of Wisconsin.
Bennett, Georgia E., *Chicago, Ill.*
B. S., University of Illinois.
Billman, Irwin. *Storm Lake, Ia.*
B. S.; B. L., Ohio Northern University. History.
Binzel. Alma Louise, *Beaver Dam.*
B. S.. Teachers College. Education.
Bishop, John Bunyan, *Forth Worth, Tex.*
M. A., Southwestern University. Greek.
Bittner, Theodora Elisa, *Watertown.*
B. A., Northwestern University,

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Bowen, Rose Andrews, *Greenwood.*
B. A., University of Wisconsin, English.
Braemer, Gustav Andrew, *Hustisford.*
B. A., Northwestern University, (Watertown).
Brohough, Gustav O. *Reg Wing, Minn.*
M. A. University of Wisconsin.
Brown, Alma, *Rockford, Ill.*
B. A., University of Michigan.
Brown, Sarah Edith, *Madison.*
B. S., University of Wisconsin.
Byran Mary McIlbaine. *St. Louis, Mo.*
B. A., Washington University.
Buckland, Katharine L., *Appleton.*
M. A., Lawrence University.
Bucknam, Kate Dana, *Sioux City, Ia.*
B. L., University of Wisconsin. History.
Burnham Marguerite Eleanor, g *Madison.*
B. A.. University of Wisconsin.
Burns, Abbie Cornelia, *University Place, Neb.*
B. A., University of Nebraska. German.
Campbell, Elmer Cory, *St. Louis, Mo.*
B. A.. Howard University.
Cance, Alexander Edmund *Shiocton.*
B. A., Macalester College.
Cannon, Lee Edwin, *Eureka, Ill.*
B. A., Eureka College. German.
Carrier, Ralph Wilbur. *Waukesha.*
B. A.. Carroll College.
Cavanaugh, Clara Elizabeth g *Shullsburg.*
B. A., St. Clara College.
Charles, Ethelwyn. *Oak Park, Ill.*
B. A , Oberlin College. History.
Chase, Wayland Johnson, *Madison.*
M. A., Brown University.
Collison. Reginald C.. *Columbus, O.*
B. S. A., Ohio State University.
Collison, Stanley Edgar, *Columbus, O.*
B. S. A., Ohio State University.
Compton, James Stephen, *Eureka, Ill.*
B. A., Eureka College. Botany.
Cook, Willis C., *Plankington, S. D.*
LL. B., University of Wisconsin.
Cool, Jane Gobles, *Blue Island, Ill.*
B. A., Wellesley College. German.
Cooper, Marion Dean g *Black River Falls.*
B. S., University of Wisconsin.
Cope, Ella Mae *Hamilton, O.*
B. A.. Mount Holyoke College.
Corbin, Mabel L., *Salt Lake, Utah.*
B. S.. Knox College.

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Coulter, John Lee, *Mallory, Minn.*
M. A. University of North Dakota.
Crandall, Anna Whitford, *Milton.*
B. A., Milton College.
Crawford, Robert Storey, *Mineral Point.*
B. A. University of Wisconsin.
Crouch, Flora Alice, *Chicago, Ill.*
B. S., Wellesley College, History.
Crowell, John, *Kenilworth, Ill.*
B. A., Dartmouth College, Latin.
Curtis, Roy Emerson *Dow City, Ia.*
B. A., Nebraska Wesleyan University.
Davis, David Melvin *Buffalo, N. Y.*
B. S., Princeton University.
Davis, Thomas Rich, *Dollar Bay, Mich.*
B. A. Olivet College.
Dawkins, Corrie Belle, *Spartanburg, S. C.*
B. A. University of Wisconsin. English.
Deach, Ivan, *Peoria, Ill.*
B. A., Leland Stanford, Jr. University. Greek.
Dean, Caroline, *Northfield, Minn.*
M. A., Doane College.
Deibler, Frederick Shipp, *Evanston, Ill.*
M. A., Harvard University.
De Lacy, John Byron, *Seattle, Wash.*
B. A., University of Wisconsin.
Desmond, Susie Isabella, *Madison.*
Ph. B., University of Wisconsin.
Dodd, Minnie Lee *Louisville, Ky.*
B. A., University of Wisconsin.
Dykema, Peter William, *New York, N. Y.*
M. L., University of Michigan.
Edwards, Richard Henry. *Madison.*
M. A. Yale College. Sociology.
Ellefson, Clarence Ferdinand, *Madison.*
B. A., University of Wisconsin.
Ellingson, Emil Oscar, *Northfield, Minn.*
B. S., St. Olaf College. Chemistry.
Elliott, Howard Martin *Petoskey, Mich.*
B. A., Olivet College. Political Economy.
Elliott, Laura Belle, *Eau Claire.*
B. A., University of Wisconsin.
Feigenbaum, William Morris, *Brooklyn, N. Y.*
M. A., Columbia University.
Ficke, Hermann Styles, *Dubuque, Ia.*
Ph. B., Lafayette College.
Flick, Ernest Clinton, *Augusta.*
B. A., University of Wisconsin.
Foreman, Clarence J., g *Madison.*
M. A., University of Michigan.

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Forsythe, William Elmer, g	*Granville.*
B. S., Denison University.	
Francisco Edith,	*Richmond, Ind.*
B. A., Earlham College.	
Freeman, Emma Catharine,	*St. Paul, Minn.*
B. S., University of Michigan.	German.
Gaebler, Hans David, g	*Watertown.*
B. A., University of Wisconsin.	
Gauvran, Ethel Harned,	*Brooklyn, N. Y.*
M. A., University of Wisconsin.	
Gilbert, Edward Martenius	*Superior.*
Ph. B., University of Wisconsin.	Botany.
Goodrich, Thomas Victor,	*Table Rock, Neb.*
B. A., University of Nebraska.	
Gohlke, George Henry,	*Lake Mills.*
B. L., University of Wisconsin.	Physics.
Graber, John Francis	*Milwaukee.*
Ph. B., University of Wisconsin,	English.
Gramlich, Ralph Clifford,	*Omaha, Neb.*
B. A., University of Nebraska.	
Grauman, Emma,	*Louisville, Ky.*
B. A., Cornell University.	History.
Grimes, Nathan Cesna,	*Madison.*
B. A., University of Michigan.	
Haberstich, Felice Minna,	*Milwaukee.*
M. A. Coates College.	
Hancock, Glover Dunn,	*Osceola, Mo.*
M. A., William Jewell College.	
Hardman, Mary Alma,	*South Bend, Ind.*
B. S., University of Chicago.	
Haviland, Dora Luella,	*Janesville.*
B. L., University of Wisconsin.	
Hebenstreit, Jane Josephine ls	*Shullsburg*
B. A., St. Clara College.	
Herrick, Louis Rowell, g	*Madison.*
M. A., University of Wisconsin.	
Hess Ralph Henry,	*Madison*
M. S., Colorado Agricultural College.	
Hetfield, William Brawner,	*Brookland, D. C.*
B. A., Catholic University.	
Heyward, Aaron,	*Cavalier, N. D.*
Ph. B., University of Wisconsin.	
Hill Howard Copeland,	*Highland Park, Ill.*
B. A., Indiana University,	History.
Hillman, Louis Frederick,	*Clarks Hill, Ind.*
M. A., Indiana University.	
Hockettt, Homer C., g	*Fayette, Mo.*
B. L., University of Wisconsin.	
Holah, Carolyn Gestina,	*Baraboo.*
B. A., University of Wisconsin.	Latin.

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Holty, Edward Olaf, *Aurora, Ill.*
B. L., University of Wisconsin.
Homburg, Fred, *Cincinnati, O.*
B. S., Cincinnati University.
Hooper. Frank Finley, *Chatanooga, Tenn.*
B. A., University of Chatanooga. Mathematics.
Hurd, Margaret Cordelia *Fayette, Ia.*
Ph. B., Upper Iowa University.
Irish, Elizabeth Hibbard, *La Crosse.*
B. A., Milwaukee College. Biology.
Iverson, Berthold Alfred, *Vermillion, S. D.*
B. A., University of South Dakota.
Jahns Louise Marie, g *Milwaukee.*
B. A., University of Wisconsin.
Jewell, John Franklin, *Fairbault, Minn.*
Ph. B., Upper Iowa University.
Johnson Albert Aaron, *Madison.*
B. S., University of Wisconsin.
Johnson, Roy Winton, *Gibson City, Ill.*
B. S., Central College.
Jones, Albert Edward, *Lena, Ill.*
B. A., University of Illinois. Mathematics.
Jones, Silas *Eureka, Ill.*
B. A., Eureka College.
Jordan, John Henry, *Onalaska.*
Ph. B., University of Wisconsin. History.
Kegley, Frederick Bittle. *Wytheville, Va.*
M. A., Roanoke College.
Kempthorne William Bismarck. *Platteville.*
Ph. B., University of Wisconsin. Mathematics.
Kenyon, Elizabeth Watson, *Madison.*
M. A., Brown University.
Kiekhoefer, William Herman, *Arcadia.*
Ph. B., Northwestern College. Philosophy.
Kissling, Arthur Charles g *Milwaukee.*
B. A., University of Wisconsin. Anatomy.
Klopsch, Otto Paul, *Peoria, Ill.*
B. A., Indiana University.
Knight, Charles Clyde, *Fulton, Mo.*
B. S., Coe College.
Koeppel, George. *Milwaukee.*
M. D., Illinois Medical College. German.
Kunerth, William, *Ames, Ia.*
B. A., University of Wisconsin. Chemistry.
Küstermann, Walter Wolleben, e *Madison.*
B. A. University of Wisconsin.
LaFollette Fola, *Madison.*
B. A., University of Wisconsin.
Lau, Arnold, *Madison.*
LL. B., University of Wisconsin.

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Leaper, Warren Eugene, *Green Bay.*
B. A.. University of Wisconsin.
Leas, Grace Eleanor, *Rochester, Ind.*
Ph. B., DePauw University.
Lescohier, Don Divance, g *Madison.*
M. A., Albion College.
Licht, William Henry, *Geneva, N. Y.*
B. S.. Trinity College.
Lorenz, Charlotte Marie, *Madison.*
M. A., State University of Iowa.
Losse, Herbert Alfred. *Milwaukee.*
B. A.. University of Wisconsin.
Lough, Mattie Elizabeth, *Chicago, Ill.*
M. A., De Pauw University. Mathematics.
Lowrie John Marshall, *Galesburg, Ill.*
B. A., Knox College.
Lowrie Selden Gale, g *Galesburg, Ill.*
M. A., University of Illinois.
Luther, Winnifred Helena, *Lawrence, Kan.*
B. A., University of Kansas.
Lynch. William Orlando, *Terre Haute, Ind.*
B. A., Indiana University.
MacArthur, Mar , *Madison.*
Ph. B., University of Wisconsin.
McAllister, Fred, *Beloit.*
M. A., Beloit College.
McClintic, Clifton F., *Williamsburg, W. Va.*
B. A., Randolph-Macon College.
McCutchen, George, *Columbia, S. C.*
B. A., University of South Carolina. Political Economy.
McKelvy, Ernest Christian, *Washington, D. C.*
B. A., Western Reserve University.
McLenegan, Annie Susan, *Beloit.*
M. A., University of Wisconsin.
McMahon. Theresa Schmid, *Madison.*
M. A., University of Washington.
McMyler. Howard Thomas, *Warrensville, O.*
B. A., Western Reserve University: Political Economy.
McNeel, Wakelin, *Kilbourn.*
B. A., Lawrence University.
Marberry, James Oscar. *Olney, Ill.*
B. A., Ewing College. History.
Marsh, Ellen Fowler. *Northfield, Minn.*
B. L., Northwestern University. Botany.
Marsh, Jeanette Eliza, *Bristol.*
Ph. B., Oberlin College.
Martens. Henry Christoph, *Milwaukee.*
B. A., University of Wisconsin.
Martin, Asa Earl, *Liberty, Mo.*
B. A., William Jewell College.

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Meek, Tecumseh H., *Peoria, Ill.*
M. A., Indiana University.
Melby, Elizabeth, *Merrillan.*
B. A., University of Wisconsin. History.
Melcher, Henry Alberts, *Delavan.*
Ph. B., University of Wisconsin. History.
Melhus, Irving E., *Burlington, Ia.*
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Costello, Margaret E.,	*Milwaukee.*
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Crawford, Willard Goldsworthy, ls	*Mineral Point.*
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Curtis, LeRoy George,	*Oakfield.*
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Davies, George Washington,	*North Freedom.*
Davis, Elizabeth Mary. ls	*Madison.*
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Davis, Lulo,	*Big Rock.*
Davison, Walter Bert,	*Madison.*
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Meuer, William Joseph, ls	*Madison.*
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Reese, Spencer Philip,	*Darlington.*
Reuter, Bertha,	*Milwaukee.*
Rich, Homer E.,	*Slater, Mo.*
Richardson, Maurice Leonard, ls-m	*Turtle Lake.*
Rickert, Lillian Estella,	*Waterloo, Ia.*
Rietow, Rhoda Henryetta,	*Sheboygan.*
Rightor, Chester Edward, ls	*Madison.*
Robertson, Arthur Hampton, ls	*Madison.*
Robertson. Maude Marion,	*Milwaukee.*
Rockwell. Ethel Theordora, ls	*Viola.*
Rodewald, John Wesley, ls	*Kilbourn.*
Rodgers, Jessie May,	*Waukesha.*
Roecker, William Frederick,	*Sheboygan.*
Roehm, Florence C.. ls	*Calumet.*
Rohr, James Earl,	*Dodgeville.*
Rose, Floy Gladys, ls	*Honey Creek.*
Rosencrans, Blanche Louise, ls	*Kansas City, Mo.*
Rosencranz, Gertrude, ls	*Evansville.*
Rowell. Elizabeth Anne,	*Amherst.*
Roybar. Nellie Claire, ls	*Madison.*
Ruble, Jesse Jones, ls	*Platteville.*
Ruhaak, Etta Catherine,	*Pekin, Ill.*
Ruhloff, Frederick Carl, e	*Milwaukee.*
Rupp, Chris A..,	*Fountain City.*
St. Sure, Violet. ls	*Madison.*
Sabean, Izzetta Lee,	*Hayward.*

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Sanderson, Edward, a	*Milwaukee.*
Sansum, William David,	*Baraboo.*
Sato Kinichi, ls	*Milwaukee.*
Schaeuble, Clara,	*Hamilton, O.*
Schaffrath, William,	*Milwaukee.*
Schell, Harmon Franklin,	*Durand, Ill.*
Schell, Nellie James,	*Durand, Ill.*
Scherpe, Amy,	*St. Louis, Mo.*
Scherpe, Frieda Elizabeth.	*St. Louis, Mo.*
Schöde, August H.,	*Concordia, Mo.*
Schram, Helen Margaret, ls	*Madison.*
Schranck, Henry Charles, Jr.. ls	*Milwaukee.*
Schreier, Konrad Foeste, ls	*Sheboygan.*
Schubert, Martha,	*Sheboygan.*
Schuchman, Bertram Frederick, e	*Madison.*
Schulze, Emma Joanna.	*Portage.*
Schuppert, William Lewis,	*Madison.*
Schwalbe. Gertrude Helen, ls	*Milwaukee.*
Scott, Laura, ls	*Madison.*
Scott, Walter Alexander,	*Augusta.*
Sheafor. Jean Thomas, ls	*Richland Center.*
Shibata, Genkwan, ls	*Toyama, Japan.*
Sidlo, Thomas Leo,	*Cleveland, O.*
Siebecker, Robert LaFollette,	*Madison.*
Siebeumann, Bertha Louise,	*Chicago, Ill.*
Siegmeyer, Johannes Wilhelm.	*Madison.*
Sievers, Fred John, a	*Madison.*
Simpson, Verazano Kerdolff, ls	*Chicago, Ill.*
Sister Mary Benetta,	*Jackson, Neb.*
Sister Mary Coronata,	*Sinsinawa.*
Sister Mary Eugenius,	*Milwaukee.*
Sister Mary Grace	*Evaston, Ill.*
Sister Mary Samuela,	*Milwaukee.*
Sister Mary Vincenza,	*Bloomington, Ill.*
Skuldt, Nina Helena ls	*Mt. Horeb.*
Slack, Jennie Elizabeth,	*Chicago, Ill.*
Slater, Percy Beverly, e	*Milwaukee.*
Slocum, Percy Wilfrid, ls	*Slocum, R. I.*
Smith, Beulah Evelyn,	*Ashland.*
Smith, Ethel E.,	*Augusta.*
Smith, Harry Forscythe, ls	*Jacksonport.*
Smith, Nina Belle,	*Waukesha.*
Smith. Pinckney Freeman,	*Brownington, Mo.*
Smith, William Harvey, Jr.,	*Mamaroneck, N. Y.*
Soriano, Oscar S., a	*Manila, P. I.*
Speed, Susan Phillips,	*Louisville, Ky.*
Sproesser. Jacob Weber, ls	*Watertown.*
Squires, Benjamin Maurice,	*Bruce.*
Staley, Forest Henry, ls-m	*Chester, S. D.*
Stecker, H. Dora,	*Cincinnati, O.*

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Stege, Lilian Elizabeth	*Louisville, Ky.*
Steinke, Laura Anna, ls	*Madison.*
Stewart Ethel Candace,	*Boise, Ida.*
Steyer, Ida Bertha,	*Indianola, Ia.*
Stiehl, Oren Daniel,	*Black River Falls.*
Stiehm Herman William Henry,	*Johnson Creek.*
Stiles, Fred Bailey, ls	*Madison.*
Stone, Emma Dell,	*Clinton, Ia.*
Stuckert, John Fred, ls	*Madison.*
Swain, Carl C.,	*Zumbrota, Minn.*
Taveira, Horace Alfred,	*Havana, Cuba.*
Te Selle, Clarence John, ls-l	*Sheboygan Falls.*
Thayer, Oscar Benjamin,	*Delafield.*
Thomas, Ethel May,	*Superior.*
Thomas John Dobson, l	*Chicago, Ill.*
Thornton, Marcia Ethel,	*Columbia Falls, Mont.*
Thorson, Thorwald.	*Forest City, Ia.*
Thursby, Helen Gertrude, ls	*Madison.*
Tiefenthaler, Leo Frank, ls	*Milwaukee.*
Tighe, Lily C.,	*Munley, Neb.*
Titus, Martin Edwin, ls	*Wilton.*
Tomelty, Mary,	*Milwaukee.*
Trane, Jessie May, ls	*La Crosse.*
Tsai, Chu Tang, ls	*Canton, China.*
Tyler Mary Bird,	*Cleveland, O.*
Ulbricht, Lydia Agnes,	*Milwaukee.*
Van Auken, Clarice ls	*Madison.*
Vanderhoof, Robert Wilfred,	*Minneapolis, Minn.*
Van Hise, Olive May,	*Demorest, Ga.*
Van Schaack, Louis Libby.	*Chicago, Ill.*
Van Schaack, Robert Hubbart, Jr.,	*Chicago, Ill.*
Vantine, Lewis Ashley, ls	*Milwaukee.*
Wade, John Cedric, e	*Muscoda.*
Wall, Donald Miller a	*Milwaukee.*
Wall, James Henry a	*Milwaukee.*
Warwick, Charles Earl, ls	*Keokuk, Ia.*
Watkins, Mary Elizabeth, ls	*Edmund.*
Weed, Leslie Bryant, ls	*Milwaukee.*
Wells George Henry,	*Cadiz, Ky.*
Welsh, Lucy, ls	*Milwaukee.*
Welsh, Mary R.,	*Milwaukee.*
West, Myron Chester,	*Beloit.*
Wheelock, George R., ls	*Peoria, Ill.*
Wheelock, Ralph Wadsworth, ls	*Peoria, Ill.*
White, Eldora	*Clinton, Ia.*
White, Elizabeth Serena,	*Chicago, Ill.*
White, William Charles,	*Canton.*
Whitelaw, Mary Reid,	*Portage.*
Whitney, Elizabeth Day,	*Dubuque, Ia.*
Wiedenbeck, Harry John, e	*Mauston.*

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Wieman, Emma Pauline,	*Colorado City, Col.*
Wiese, Otto, ls	*Avoca, Ia.*
Wilder, George Green,	*Chicago, Ill.*
Wilke, Adelaide Elizabeth.	*Madison.*
Wille, Louis William. ls	*Milwaukee.*
Williams, Arthur James, ls	*Evansville.*
Williams, Frank Ernest, ls	*Madison.*
Wilmanns, Arthur John, ls	*Milwaukee.*
Winnie. Alonzo Julius, ls	*Racine.*
Wood. Grace La Vergne, ls	*Brandon.*
Woods, Patricius Aloysius,	*Watertown.*
Youmans, Adda Beth,	*Neillsville.*
Zentner, Francis Henry, a	*Madison.*

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SUMMER SESSION—ENGINEERS AND ARTISANS

GRADUATES

Bole, Simeon James, *Athens, Mich.*
B. A., University of Michigan.

Bolton, Frank Cleveland, *Agricultural College, Miss.*
B. S., Mississippi Agricultural and Mechanics College.

Boyd, Alfred, *Lincoln, Neb.*
B. S.. Washington University.

Bridgman, Benjamin Williams, *Madison.*
M. A., University of Wisconsin.

Corp, Charles Ives, *Lawrence, Kan.*
B. S., University of Kansas.

Guell. Antonio, *Urbana, Ill.*
M. S.; M. E., Louisiana State University.

Harris, Walter David, *Houghton, Mich.*
M. A., University of Nebraska.

Hill, William Welch, *Auburn, Ala.*
M. S.; M. E., Alabama Polytechnic Institute.

Huffman, William Henry, *St. Louis, Mo.*
B. A., Denison University.

Nickels. Charles Burton, g *Toledo, O.*
B. A., Denison University.

Nottingham, Avon Roberg. *College Station, Tex.*
B. S., University of Kansas.

Parker, Wilfred Cedric, *Milwaukee.*
B. S., University of Wisconsin.

Shaphorst, William Frederick. *Brookings, S. D.*
B. S., South Dakota State College.

Seaton. Roy Andrew, *Manhattan, Kan.*
B. S., Kansas State Agricultural College.

Shellenbarger. Rufus Clark, *Yankton, S. D.*
M. A., University of Michigan.

Thornton, August Oliver. *St. Louis, Mo.*
Washington University.

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Walker, John Pearson, *Collierville, Tenn.*
B. S., Mississippi Agricultural and Mechanics College.
Wooton, Onnie B.. *Agricultural College, Miss.*
B. S.. Mississippi Agricultural and Mechanics College.
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UNDERGRADUATES

Acret George Edward, e	*Madison.*
Algeo Harold Leigh, e	*Chicago, Ill.*
Allen, Carlton Harrison, e	*Belleville.*
Austin, Eric Walton, e	*Spanishtown, Jamaica.*
Ball, Edwin Marcotte, e	*Madison.*
Barth, John Herman. e	*Port Washington.*
Bartlett, Charles Lynn. e	*Milwaukee.*
Barton, Jesse Billings, Jr., e	*Hinsdale, Ill.*
Becker, John Walter, e	*Madison.*
Bell, George William. e	*Tomah.*
Belsky, Charles James, e	*Dubuque, Ia.*
Bennett, Arthur Earle, e	*Crandon.*
Blake, George Barnes, e	*Huron, S. D.*
Blankenburg, Herbert Louis,	*Milwaukee.*
Bonesteel. Lloyd Homer, e	*Padus.*
Boon. Leonard Francis, e	*Appleton.*
Bragg, Chester Homer, e	*Lake Mills.*
Bray, Charles Paige,	*Oshkosh.*
Broker, Albert Edward,	*Lindsley.*
Burritt, Charles Glenn. e	*Mauston.*
Buser, John Thomas. e	*Potosi.*
Caldwell, Walter Gaynor, e	*Pewaukee.*
Cenfield, Frank Henry, e	*Potosi.*
Chamberlin, George Willard, e	*Whitewater.*
Chuchian. Sahak Melkon, e	*Boston, Mass.*
Cnare, Frank, e	*Madison.*
Coleman, Alfred Freude, e	*Chippewa Falls.*
Conlin, William Henry, e	*Madison.*
Cooper, Fenimore,	*Milwaukee.*
Crocker, Arthur George.	*Madison.*
Curtiss, Edwin Ford. e	*Madison.*
Cutler, Manuel, e	*Dodgeville.*
Damm, Paul Emil, e	*Lancaster.*
Davies, Frederick Earl, e	*Fox Lake.*
Davis. Louis Samson. e	*Granton.*
Dean. George Franklin,	*Milwaukee.*
Decker, David Claire,	*Oneida.*
Dickinson, Kendall Foote, e	*Lake Geneva.*
Dillon, Carl Duncan, e	*Madison.*
Dodds, John Hutchins. e	*Madison.*
Dodge, Paul Conde. e	*Madison.*
Dunlap, Louis Emory, e	*Madison.*
Dutton, Byron Kaye, e	*Waupaca.*
Elmore, William Chapman, e	*Green Bay.*

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Fellows Elbert Kenneth, e	*Lodi.*
Fess Perry Thomas, e	*Madison.*
Fisher, Samuel Morton, e	*Madison.*
Fretz, Edmund Anthony, e	*Milwaukee.*
Fuller, Clifford, e	*Madison.*
Gayton, Robert Fischer.	*Pueblo, Col.*
Gibson, Leo Edgar, e	*Ft. Atkinson.*
Gilman, Alexander Falk, e	*Racine.*
Gilman, Stephen, e	*Madison.*
Gingrich, Hiram Eugene, e	*Rockford, Ill.*
Glick George Abbott, e	*Marschalltown, Ia.*
Glover. Louis Earle, e	*Oshkosh.*
Gottschall, Herbert H., e	*Madison.*
Greenwood, Charles Herbert, e	*Milwaukee.*
Griswold, Ernest Carl, e	*Madison.*
Haevers, William. e	*Luxemburg.*
Hale, Fred Carl, e	*Madison.*
Hall, Sidney Phillips, e	*Madison.*
Hambrecht, Albert Lewis, e	*Madison.*
Hammond, Lewis Merrick, e	*Wauwatosa.*
Harwick. Guy Duval, e	*Mineral Point.*
Hebberd. Loren Loomis, e	*Chicago, Ill.*
Hidalgo, Augusto,	*Manila, P. I.*
Hinn, William Henry, e	*Fennimore.*
Hodges, Paul, e	*Monroe.*
Hoefer, Irving Burton. e	*Freeport, Ill.*
Holverscheid, Robert. e	*Hinsdale, Ill.*
Huntington, Edward Estabrook, e	*Platteville.*
Iakisch, John Rudolph, e	*Granton.*
Jaekel, Elmer Carl, e	*Antigo.*
Johnson. Francis Ellis, e	*Madison.*
Johnson. Glen LeRoy, e	*Rockford, Ill.*
Jones, Charles Alvin, e	*Burlington.*
Jones, Charles Edward, e	*Madison.*
Kamantique, Jacinto Manila, e	*Imus, Cavite, P. I.*
Keator, Edward Hollis. e	*Moline, Ill.*
Kehr, Carl Merriman,	*Sterling, Ill.*
Kemp, William Bilton, e	*Madison.*
Knuth, Tony Byron,	*Owen.*
Kohler, George William,	*Madison.*
Kringel, August Emil, e	*Wauwatosa.*
Lachmund Herman, e	*Milwaukee.*
Ladd, Lester Lyle, e	*Peru, Ill.*
Lagrandeur, Henry Joseph, e	*Somerset.*
Lauderdale, Jesse Edward, e	*Elkhorn.*
Laughlin, Earl Cletus, e	*Antigo.*
Lee, Harvey Richard. e	*Janesville.*
Lees, Walter Edwin, e	*Mazomanie.*
Lent, Wilmar Francis, e	*Washington, D. C.*
Lewis, Robert Dudley, e	*St. Paul, Minn.*
Luedke. Arthur Louis, e	*Milwaukee.*

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Lunenschloss Edward Joseph, e	*Richland Center.*
Lupinski, Oswald, e	*Milwaukee.*
McLeod, Robert Henry,	*Eau Claire.*
Macaraeg, Juan Guico, e	*Binalonan, Pang., P. I.*
Manor, Eli Ross e	*Genoa Junction.*
Martin, Andrew Henry e	*Bloomer.*
Miller, Charles John, e	*La Crosse.*
Moore, Charles Gilbert, e	*Eau Claire.*
Mowatt, William Frank, e	*Delano, Minn.*
Nance. Archibald Whitfield, e	*Monroe.*
Nelson, Ernest Benjamin, e	*Iron River.*
Newman, Hubert Joseph, e	*Milwaukee.*
Orr, Lester Benson, e	*Mt. Hope.*
Palmer, Edward Albert,	*Janesville.*
Palmer, Glenn Alcott a	*Brodhead.*
Partlow, Kenneth Laurence,	*Shawano.*
Pease, Spencer Adams, e	*Wauwatosa.*
Pengelly, Roy Leo, a	*Madison.*
Pfannstiehl, Jean Jacques,	*Baraboo.*
Pierce John Alexander, e	*Elkhorn.*
Plamondon George Octave, e	*Elkhorn.*
Potter, Byron Sears, a	*Madison.*
Ramos, Juan Manuel, e	*Camaguey, Cuba.*
Rankin, Hiram Smith, e	*Milwaukee.*
Reber, Louis Earhart Jr., e	*Madison.*
Reinert, Walter August, e	*Milwaukee.*
Reynolds, Benjamin Smith, e	*Milwaukee.*
Reynolds, Thomas Myrick, e	*Milwaukee.*
Richardson, Elwood Arthur, e	*Turtle Lake.*
Robertson Robert Earl, e	*Fort Atkinson.*
Roherty, John Neal e	*Evansville.*
Salas, Mariano Julio, e	*Molo, Iloilo, P. I.*
Saxton, Ren George, e	*Madison.*
Schmidt, Alfred Charles, e	*Milwaukee.*
Schmidt. Carl Albert,	*Dubuque, Ia.*
Schneider, Walter George, e	*Madison.*
Schroeder, Edward Herman, e	*Wausau.*
Schwalbe, William Louis, e	*Milwaukee.*
Sellmer. Edwin Oscar, e	*Milwaukee.*
Shapiro, Samuel, e	*Marshfield.*
Shea, John Richard, e	*Oshkosh.*
Sherburne, Frank Valentine, e	*Fremont.*
Shipek, Adolph, e	*Antigo.*
Siefert, Paul Herman e	*Kaukauna.*
Slidell Kemper, e	*Milwaukee.*
Smart, Cyrus Francis, e	*Dodgeville.*
Smith, Leathem Daley, e	*Sturgeon Bay.*
Sneen, Arthur Oscar, e	*Stanley.*
Springer Ernest John, e	*Milwaukee.*
Stephenson, Louis De Witt ls	*Madison.*
Steudal, George Elias, e	*Chilton.*

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Stocker, George Patrick, e	*Platteville.*
Storer, Raymond Frederick, e	*Des Moines, Id.*
Sun, Jeefong Roy, e	*Ithaca, N. Y.*
Swasey. Arthur Morton,	*De Kalb, Ill.*
Swasey, Sheldon Spencer, Jr.,	*De Kalb, Ill.*
Tanghe, Henry Franklin, e	*Milwaukee.*
Thayer, Thaxter Crugier. e	*Madison.*
Thiessen, Frank Carlton, e	*Oshkosh.*
Torkelson, Francis Arthur, e	*Black River Falls.*
Tourtellot, Edward Boyington, e	*Hopkinton, Ia.*
True, Henry Alfonsa. Jr.. e	*Denver, Col.*
Tuttle, Alonzo Harris, e	*Richland Center.*
Urbutt, Carl Fred, e	*Oconomowoc.*
Vallarta, Julian,	*San Isidro, N. E., P. I.*
Van Auken, Claude Linn. e	*Madison.*
Van, Auken, Kenneth, e	*Madison.*
Wagner, Karl Edward, e	*Freeport, Ill.*
Waite, John Howard, e	*Brooklyn.*
Watson. Clarence Forbes. e	*Ashland.*
Wehner, Stephen Wilmer, e	*Madison.*
Weidenfeller, Raymond Phillip, e	*Mineral Point.*
Wetzel, William John, e	*Madison.*
Whisman, Harlan Merritt, ls	*Huron, S. D.*
White. Albert Ray. e	*Marinette.*
Witt, William Henry, e	*Marshfield.*
Wohlrab, Sylvan William,	*Milwaukee.*
Wood, Harold Paul,	*Madison.*
Woods, Charles Reynolds, e	*Fond du Lac.*
Wright. John David. e	*Baraboo.*
Wuerth, Hubert, e	*Sauk City.*
Yager, Ralph Mark, e	*Madison.*
Zeidlhack, Felix Stephen, e	*Milwaukee.*

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ARTISANS

Barton, Orla Avery,	*Valley City, N. D.*
Berkley. Eli A.,	*Oshkosh.*
Campbell, Adelbert Benjamin,	*Natalbany, La.*
Chalfant, Earl Russell,	*Menomonie.*
Coles, Chester Arthur,	*Atlanta, Ga.*
Cook, Ernest Will,	*Baraboo.*
Faulkes. William F..	*Two Rivers.*
Fish, Ray Eugene,	*Janesville.*
Harlacher, Eugene Harding,	*Eau Claire.*
Havens, Fred L.,	*Chicago, Ill.*
Hickisch, Arthur B.,	*La Crosse.*
Holmes. Minot Kingman.	*Muncie, Ind.*
Krech, Charles,	*Milwaukee.*
Law, Robert Melvin,	*Madison.*
MacEachern, Alexander Ray,	*Milwaukee.*
McGilvary, Lewis Paton,	*Madison.*

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McGrath. Thomas Raymond.	*Green Bay.*
Mackin, James,	*Madison.*
Mireau, Clarence Thomas,	*Menomonie, Mich.*
Munger, Leon Duane,	*Janesville.*
Norris, Niel,	*Milwaukee.*
Reed. Harold Bushnell,	*Cleveland, O.*
Schaaf, Kenneth,	*Waverly, Ill.*
Schan, Harvey J.,	*Menomonie.*
Schilling, Walter William, e	*Green Bay.*
Schoenwetter, Otto Charley,	*Juneau.*
Taylor. John Atkinson. e	*New Lisbon.*
Touton, Luis L..	*Edgerton.*
Walters, Lee David, e	*Milton, Mass.*
Whomes, Frank William,	*Madison.*
Wright, Edwin Carew, e	*Newport, Ky.*

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SUMMER DAIRY STUDENTS

Cross, Hugo John.	*Winneconne.*
Johnson, Henry Ray,	*Fairwater.*
Gibson, Tilford Marion,	*Dry Ridge, Ky.*
Kinney, Irvin Elsworth,	*Eland.*
Richter, Walter Charles.	*Emerald.*
Riley, Irvin Henry,	*Genoa.*
Siegman, Henry Edward,	*Johnson Creek.*
Simpson, Otto Gerald,	*Seever, Ore.*
Smith, Ray Kendrick.	*El Paso, Tex.*
Taylor, Edward Samuel,	*Red Granite.*
Trelvar, Delbert Claude,	*West Allis.*

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SUMMER SESSION—LAW STUDENTS

Allen. David King. B. A., l	*Allenville.*
Baker, John Franklin, B. A.,	*Alma Center.*
Bartelt, Arthur Herman, B. A.,	*Ft. Atkinson.*
Bashore, Ethelbert Jay, B. A..	*Sheffield, Ill.*
Belknapp. Clark Hiram, M. A., l	*Iowa City, Ia.*
Bong, Carl Charles, l	*Green Bay.*
Browne, James Howard, l	*Chippewa Falls.*
Bushnell. Alfred Hanson, B. A., l	*Madison.*
Chamberlain, Harlem Roy, B. L..	*Huron, S. D.*
Conger, James William, B. S.	*Alford, Miss.*
Darrow, Joseph Daniel, l	*Argyle.*
Dreutzer, Carl Ebbe. l	*Sturgeon Bay.*
Edwards. Verne R., l	*Bloomington.*
Ford, John Patrick, l	*Rosendale.*
Gibbon, Charles Hugh,	*Dodgeville.*
Gray. William Alexander, ls	*Benton.*
Haberlin. William James,	*Courtenay, N. D.*
Hake, Walter Scott.	*Elroy.*
Hall, Charles Norton, B. A., l	*Madison.*

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Hemp, Bernard Ford, B. A.,	*Ripon.*
Hill, Carl Newell, l	*Spring Green.*
James Albert Earl, B. A.,	*Madison.*
Jedney, Severn Eli, B. A.,	*Blair.*
Jenkins, Frank Baronowsky,	*Upper Alton, Ill.*
Jones. Elmer Orlando,	*Kirksville, Mo.*
Karrow, Herman Henry, l	*Milwaukee.*
Kelly. Albert Matthew, l	*Hale's Corners.*
Kerr, William Dunton, B. A., l	*Madison.*
Kingsford, Alfred Charles, B. L.,	*Sheboygan Falls.*
Luxford, George A.,	*Harlan, Ia.*
Miller, James Scott B. A.,	*Burlington.*
Miller, William W., B. A.,	*Nappanee, Ind.*
Murphy, James Roach, l	*Chippewa Falls.*
Orchard, Milton, Ph. B., l	*Muscoda.*
Phelps, Sumner Henry,	*Minto, N. D.*
Rademaker. Oscar, B. A.,	*Madison.*
Riley, Miles Charles, l	*South Milwaukee.*
Roberts, John Archibald,	*Columbus.*
Roehl, Julius Otto, B. A., l	*Milwaukee.*
Rundell, Oliver Samuel, l	*Livingston.*
Sautoff. Harry, B. A., l	*Madison.*
Schoenfield, William Daniel, l	*Monroe.*
Shaff John Ostrander, M. S., l	*Madison.*
Skinner, John Sharpe,	*Princeton, Ill.*
Stiehm, Ewald Otto, ls-l	*Johnson Creek.*
Strang Clive Joseph, l	*Grantsburg.*
Swanjord, Ole F.,	*Balaton, Minn.*
Swenson, Henry E. B. A.,	*Racine.*
Vandervelde, Bartholomew, B. A., l	*Brandon.*
Wright, Colin Wilson Jr., l	*Monroe.*
Zollmann, Carl Frederich Gustav, l	*Horicon.*

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SCHOOL OF MUSIC

GRADUATES

Anderson. Vinnie Bertine,	*Stoughton.*
Ryan, Winefrid Martha,	*Wausau.*
Theobald, Almina Mae,	*Madison.*
Webber. Jessie Myrtle,	*Abiline, Kas.*

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COLLEGIATE IV

Carter, Doris Eleanor, ls	*Hinsdale, Ill.*
Coon, Winifred Pansy.	*Edgerton.*
Hudson, Josephine Darlington,	*Lancaster.*
Klinefelter, Barbara Hazel,	*Madison.*
Olson, Maybelle Harriet,	*Cambridge.*
Taylor, Jennie Mabel,	*Madison.*
Vantine. Lewis Ashley, ls	*Milwaukee.*

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COLLEGIATE III

Haswell, Alice Elizabeth,	*Canfield, O.*
Krause, Lenore, ls	*Madison.*
McMillan. Florence Edythe,	*Fort Atkinson.*
Nelson, Adeline Rebecca,	*Madison.*
Patterson, Zenia Marguerite.	*Baraboo.*
Rankin, Edward Ira, ls	*Fort Atkinson.*
Sanders, Belinda Marie,	*Madison.*
Smith, Mrs. Josephine.	*Madison.*
Stevens, Anna Jessamine,	*Evansville.*
Toepfer Selma,	*Madison.*
Tyler, Verna Mae,	*Yankton, S. D.*
Whyte, Effie Margaret, g	*Watertown.*
Williams Mabel Elizabeth, ls	*Cobb.*
Wohlenburg, Erma Louise, ls	*Holstein, Ia.*
Wright, Gertrude.	*Green Bay.*
Wyman, Ella Mary, ls	*Viroqua.*

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COLLEGIATE II

Babcock, Hazel, ls	*Kosota, Minn.*
Baker, Sarah Alice ls	*Eagle.*
Bewick, Grace Beatrice, g	*Madison.*
Boettge. Cornelia Louise, ls	*Berlin.*
Brandt, Fredolia Eugenia, ls	*Watertown.*
Bridge, Mrs. Evelyn,	*Madison.*
Casey. Simon William	*Watertown*
Chrisler, Lola Vee,	*Lodi.*
Constantine, Hazel van Scoter.	*Madison.*
Dahle, Gertrude Agnes,	*Sun Prairie.*
Douglas, Edward Milton,	*Camlachie, Ont. Can.*
Durley, Lucile	*Superior.*
Elvis, Emma Margaret,	*Medford.*
Greene, Dotha Esther,	*Mazomanie.*
Harrison. Edna Lucretia,	*Madison.*
Hayes, Mae Estelle, ls	*Janesville.*
Immel. Lois Constance, ls	*Denver, Col.*
Jensen, Mrs. Fred M.,	*Stoughton.*
Johnson. Edna Grace. ls	*Sioux Falls, S. D.*
Johnson, Laura Butler, ls	*Madison.*
Lehman, Frances Esther, ls	*Woodlawn.*
Marquette, Mrs. Mary Christina.	*Madison.*
Polley, Grace Irma,	*Madison.*
Rime. Olga Henrietta,	*Dell Rapids, S. D.*
Rood, Grace May,	*Sun Prairie.*
Shapiro, Estelle, ls	*Medford.*
Swan, Helga Louise,	*Stoughton.*
Thrasher, Ellen Sarah, ls	*Kewaunee, Ill.*
Weaver, Paul John, ls	*Madison.*
Wulfing, Alice Constance,	*Madison.*
Zimmerman, Mrs. Nell,	*Madison.*

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COLLEGIATE I

Allen, Patty Francesca. ls	*Billings, Mont.*
Anderson, Alice Johanna,	*Madison.*
Bennett. Winifred,	*Weyauwega.*
Birkinbine, Minnie Cordelia,	*Sun Prairie.*
Blee, Gladys E., ls	*Sandwich, Ill.*
Blunt, Lena Pearl, ls	*Madison.*
Boyd, Alma Marie, ls	*Madison.*
Bramhall, Ruth Mae.	*Madison.*
Breeding, Helen Marguerite,	*Whitewater.*
Crane, Winifred Lucy, ls	*Kalisfrel, Mont.*
Currie, Jean Young, ls	*Milwaukee.*
Dacy, George Harold, a	*Woodstock, Ill.*
Dale. Edna Pauline, g	*Dunlap, Mo.*
Egre, Ella Johanna,	*Cambridge.*
Ely, Mary Chisholm, ls	*Madison.*
Emery, Lila, ls	*Northwood, Ia.*
Flower, Dorothy, ls	*Madison.*
Fryette, Evangeline. ls	*Madison.*
Gilbert, Florence Ethel,	*Madison.*
Goodale, Frances Josephine, ls	*Houghton, Mich.*
Grimm, Dacotah Beth. ls	*Parkston, S. D.*
Gulliford, Kate Ann,	*Oshkosh.*
Hartley, Marion Belle, ls	*Oshkosh.*
Jencks, Vescey Belle,	*Lodi.*
Jennings, Helen,	*Madison.*
Johnson. Grace Alice,	*Portage.*
Johnson, Olga Bergette,	*Stoughton.*
Jungkunz, Ilma De Murska ls	*Freeport, Ill.*
Kasiska, Mabel Josephine, ls	*Pocatello, Idaho.*
Kissel, Ida Emma,	*Hartland.*
Kratz, Clara Lola, ls	*Schleisingerville.*
Lachmund, Clara, ls	*Milwaukee.*
Levitan, Abe Mortimer, ls	*Madison.*
Lewis, Eva Grace, ls	*Racine.*
McGeehan, Agnes Pearl,	*Hurley.*
Mead. Jessie Rose,	*Plymouth.*
Meinecke, Conrad Eugene, ls	*Milwaukee.*
Moss, Ruth Elizabeth. ls	*Milwaukee.*
Nickels, Charles Burton, g	*Madison.*
Pierce, Mrs. Caroline,	*Madison.*
Ragan, Beatrice Katherine.	*Shawano.*
Reynolds, Florence Ethel.	*Madison.*
Reuss. Beth Anna,	*Sun Prairie.*
Robinson, Miriam Josephine, ls	*Madison.*
Roehling, Otto Carl, ls	*Milwaukee.*
Rogers. Harlan Berthune, l	*Portage.*
Rustone, Berlin Alwood, e	*Deerfield.*
Sexton, Marie Jeannette. ls	*Marshfield.*
Simon, Lucile Claire,	*Madison.*

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Sims, Vivian Florence, ls	*Linden, N. D.*
Starks, Irene Valenche, ls	*Madison.*
Sullivan, Helen,	*Madison.*
Swenson, Helen Katherine, ls	*Madison.*
Terry, Clara Jeanette, ls	*Madison.*
Terry, Edna June, ls	*Madison.*
Williams, Mary Etta,	*Madison.*

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SUMMARY OF STUDENTS

GRADUATE SCHOOL—246

Fellows	19
Scholars	16
Other Graduate Students	211

COLLEGE OF LETTERS AND SCIENCE—1941

Graduate Students	200
Senior Class	320
Junior Class	342
Sophomore Class	409
Freshman Class	560
Adult Special Students	78
Two-Year Pharmacy Students	32

Included in the above are the following:

Course in Commerce—216

Senior Class	27
Junior Class	38
Sophomore Class	50
Freshman Class	91
Adult Special Students	10

Course for Normal School Graduates—72

Senior Class	34
Junior Class	38

Course in Pharmacy—44

Graduates		4
Four Years' Course	Seniors	3
	Juniors	4
	Freshmen	1
Two Years' Course.	Third Year	1
	Second Year	7
	First Year	24

Course in Chemistry—41

Senior Class	4
Junior Class	7
Sophomore Class	11
Freshman Class	15
Adult Special Students	4

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College of Medicine—32
- Second Year 14
- First Year 18

COLLEGE OF ENGINEERING—896
- Graduate Students 26
- Senior Class—158
  - Civil Engineering Course 52
  - Mechanical Engineering Course 26
  - Electrical Engineering Course 46
  - General Engineering Course 17
  - Chemical Engineering Course 8
  - Mining Engineering Course 9
- Junior Class—156
  - Civil Engineering Course 65
  - Mechanical Engineering Course 21
  - Electrical Engineering Course 45
  - General Engineering Course 14
  - Chemical Engineering Course 5
  - Mining Engineering Course 6
- Sophomore Class—210
  - Civil Engineering Course 84
  - Mechanical Engineering Course 34
  - Electrical Engineering Course 61
  - General Engineering Course 11
  - Chemical Engineering Course 10
  - Mining Engineering Course 10
- Students in Advanced Course included in the above:
  - Civil Engineering Course 10
  - Mechanical Engineering Course 2
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  - Seniors 33
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  - Sophomores 45
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  - Second Year 2
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  - Second Year 273
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COLLEGE OF LAW—165

Senior Class	51
Middle Class	34
Junior Class	33
Seniors in Letters and Science Electing Law Studies	17
Unclassified Students	30

SCHOOL OF MUSIC—114

Collegiate	Graduate Students	4	
	Fourth Year	7	
	Third Year	16	
	Second Year	31	
	First Year	56	114
Deduct students enrolled in other colleges			55—59

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Letters and Science—			
Graduate Students		267	
Undergraduates and teachers		470	
College of Law		51	
Apprentices and Artisans—			
Graduate Students		18	
Undergraduates		178	
Artisans		31	
Dairy School		11	1026
Deduct students now attending the University			408
			618
Total number of students			4538
Twice enumerated 17, leaving as actual number			4521

In the enumeration of adult special students above, the classification by courses is as follows: Letters and science, fourth year 3; third year 4, second year 16; first year 55; Civil Engineering, third year 4, second year 5; Mechanical Engineering third year 1; second year 6; Electrical Engineering, third year 3; second year 1; first year students in Engineering 23; Agriculture, fourth year 1; third year 2; second year 1; first year 23.

NOTE: In the School of Music the above enumeration does not include the students classified as academic. Of these there are 191 for the current year.

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